SERVICE MANUAL

FISHER

CR-4120

Two kinds (Black and Silver) of Front Panels including Knobs are used in CR-4120. As they are classified in Exploded Views and Parts Lists, please refer to them.

Stereo Cassette Tape Deck

FISHER
STEREO CASSETTE DECK
INPUT LEVEL
BIAS
EQ
INPUT
DOLBY NR
MIC
LEFT
RIGHT
CR-4120

THE FIRST NAME IN HIGH FIDELITY

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SPECIFICATIONS

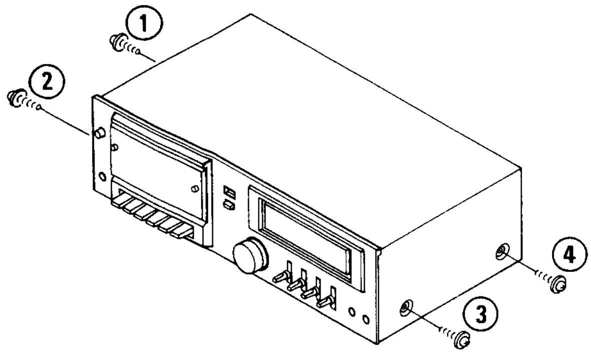
Power Source	AC 120/220V (50/60Hz)
Power Consumption	10W
Recording System	AC Bias
Erasing System	AC Erasing
Tape Speed	1-7/8 ips. ±1.5%
Wow & Flutter	0.08% WRMS
Torque	
Playback	30 - 60g-cm
Fast Forward	50 - 120g-cm
Rewind	50 - 120g-cm
Fast Forward Time	100sec. (C-60 cassette)
Rewind Time	100sec. (C-60 cassette)
Frequency Response (Overall, DOLBY : OFF)	
Fe_2O_3 (7dB band)	30 - 12.5kHz
FeCr (7dB band)	30 - 14kHz
CrO_2 (7dB band)	30 - 14kHz
Signal to Noise Ratio (According to CCIR method: Weighted, DOLBY : ON)	
Fe_2O_3	59dB
FeCr	61dB
CrO_2	61dB
Signal to Noise Ratio (According to CCIR method: Weighted, DOLBY : OFF)	
Fe_2O_3	50dB
FeCr	54dB
CrO_2	54dB
Erase Ratio (Overall)	
Fe_2O_3	70dB
FeCr	70dB
CrO_2	70dB
Crosstalk (with Fe_2O_3)	
Track to Track	70dB
Channel Separation (with Fe_2O_3)	40dB
Harmonic Distortion (K3)	
Fe_2O_3	1.5%
FeCr	1.5%
CrO_2	2.0%
Input Sensitivity and Impedance	
Microphone	0.3mV/10k-ohm
LINE IN	30mV/100k-ohm
Output Level and Impedance	
LINE OUT	500mV/3.3k-ohm
Headphone	30mV/1k-ohm
Oscillation Frequency	85kHz
Dimensions (W x H x D)	440 x 132 x 240mm
Weight	5kg

—Specifications subject to change without notice.—

DISASSEMBLY INSTRUCTIONS

COVER REMOVAL

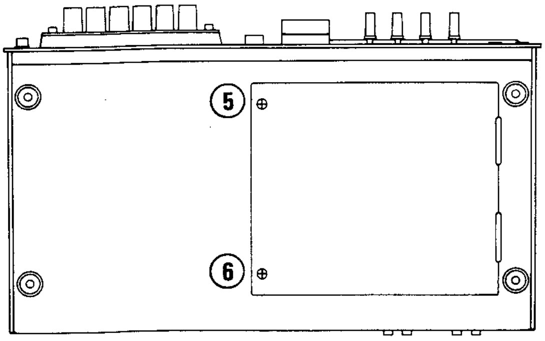
1. Remove the four screws (1 – 4) fastening the Cover.



2. Remove the Cover by lifting it in the direction of the arrow.
3. Reassemble in reverse order.

SHEET PANEL REMOVAL

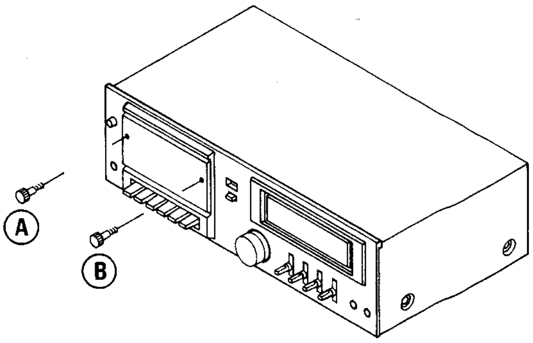
1. Turn unit over onto a clean soft surface.
2. Remove the two screws (5 and 6) fastening the Sheet Panel and detach the Sheet Panel from the unit.



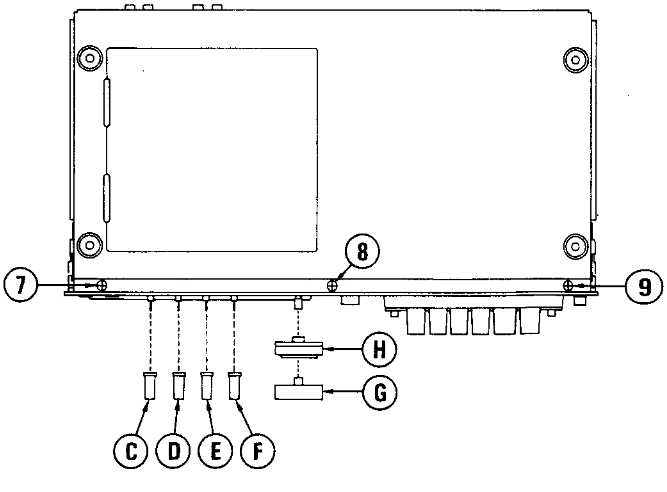
3. Reassemble in reverse order.

FRONT PANEL REMOVAL

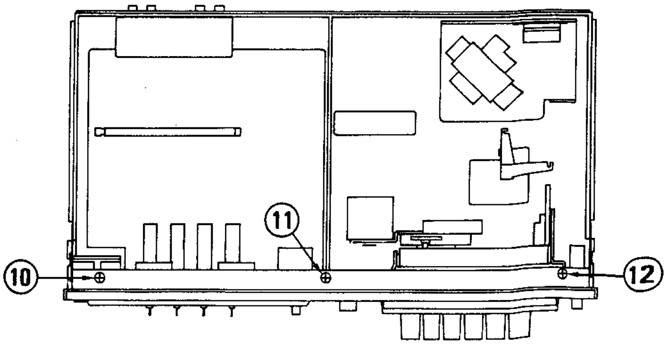
1. Remove the Cover by following the instructions for it.
2. Open the cassette compartment lid by pressing the STOP/EJECT button and take out the cassette tape from the cassette compartment. Detach the Window and the cassette compartment lid panel by removing the two Dress screws (A and B). Then, close the cassette compartment.



3. Turn the unit over and pull out the four Switch Knobs (C – F) and the Input Level Control Knobs (G and H) from the unit.
4. Remove the three screws (7 – 9) fastening the lower side of the Front Panel and turn the unit in an upright position.



5. Remove the three screws (10 – 12) fastening the upper side of the Front Panel. Then, remove the Front Panel from the unit.



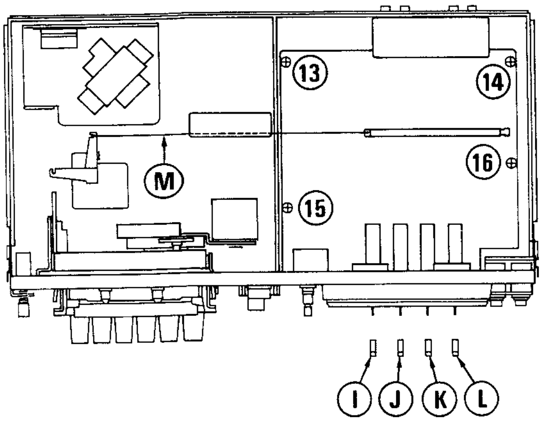
6. Reassemble in reverse order.

DISASSEMBLY INSTRUCTIONS (Continued)

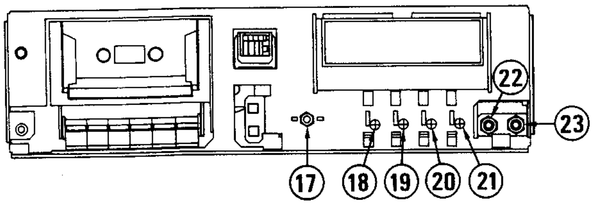
AMPLIFIER P.C.BOARD REMOVAL

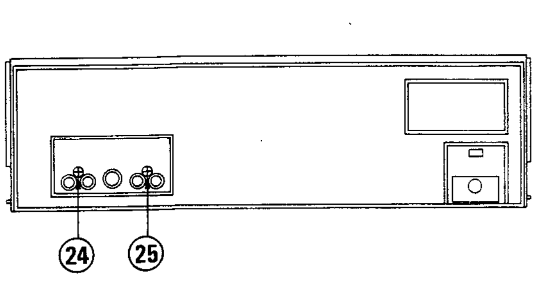
1. Remove the Cover and the Front Panel by following the instructions for them. Then, pull out the two connectors (CN1 and CN2) from the Amplifier P.C.Board.

2. Pull out the four switch decorations (I – L) from their Switch Levers and remove the Record Wire (M) from the Record Lever. Then, remove the four screws (13 – 16) fastening the Amplifier P.C.Board.



3. Remove the nut (17) holding the Input Level Control, the four screws (18 – 21) holding the switches, the two nuts (22 and 23) holding the Microphone Jackes, and the two screws (24 and 25) holding the Line Jack P.C.Board.





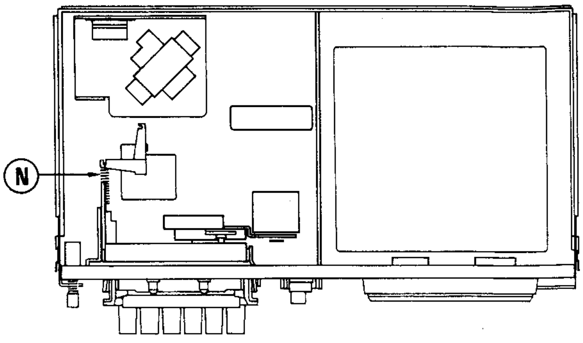
4. Carefully lift the Line Jack side of the Amplifier P.C.Board to remove the P.C.Board from the unit, noting the lead wires.

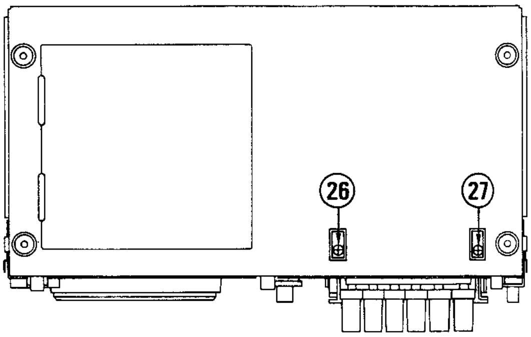
5. Reassemble in reverse order.

MECHANISM CHASSIS REMOVAL

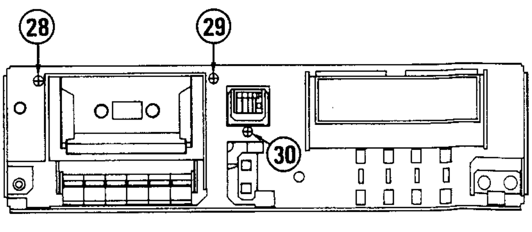
1. Remove the Cover and the Front Panel by following the instructions for them.

2. Turn the unit over and remove the two screws (26 and 27) fastening the Mechanism Chassis.





3. Place the unit in an upright position and remove the Record Lever Spring (N) from the Record Lever. Then, remove the three screws (28 – 30) fastening the Chassis.



4. Carefully remove the Mechanism Chassis from the unit, noting the lead wires.

5. Reassemble in reverse order.

MECHANICAL ADJUSTMENTS

EQUIPMENTS REQUIRED

- Fan-shaped Tension Gauge (500g maximum)
- Cassette-type Torque Meter (100g maximum)
- Thickness Gauge
- Silicone Grease (Example: SHIN-ETSU SILICONE KS-64)
- Paint or Glue

GENERAL REMARKS

- Before adjusting the mechanism of the unit, clean the tape contacting surfaces with a soft cloth soaked in alcohol.
  Trouble may occur because of oil and grease stains.

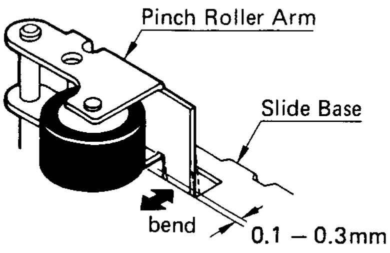
- The Belts must be kept clean while the adjustments are performed.
  - * Silicone grease (Example: SHIN-ETSU SILICONE KS-64) is applied to the Drive Belt and the Take-up Belt to protect them from abrasion.
    If the grease lacks, apply a proper amount of silicone grease (Example: SHIN-ETSU SILICONE KS-64) to each groove of the Flywheel and Friction assemblies.

    NOTE:
    Silicone grease is not applied to the Replacement Parts.

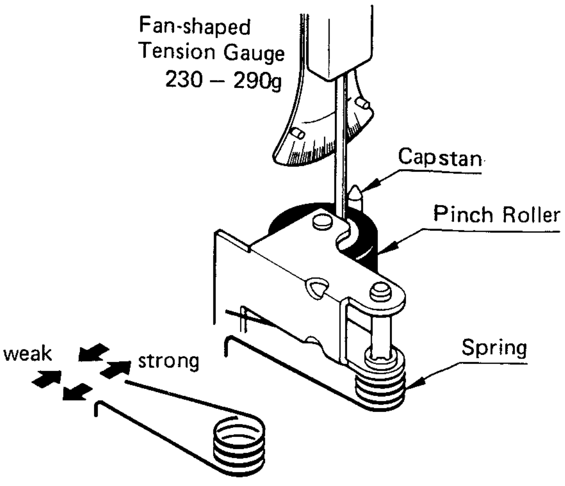
- **Never apply grease or oil to the ASO Belt. If grease gets on belt, wipe it clean with bezine.**

PINCH ROLLER ADJUSTMENT

1. Set the unit in the playback mode and check to see that the clearance between the Pinch Roller Arm and the Slide Base is 0.1 – 0.3mm, and that the Take-up Reel Gear rotates before the Pinch Roller starts rotating as the PLAY button is gradually pressed.
   * If necessary, adjust the clearance by carefully bending the Pinch Roller Arm as illustrated.
   Do not bend it excessively.



2. Measure the pinch roller pressure with a fan-shaped tension gauge (500g) with the unit in the playback mode as follows:
   * Hook the fan-shaped tension gauge to the Pinch Roller as illustrated and pull it away from the Capstan.
   Then, slowly bring the Pinch Roller close to the Capstan.



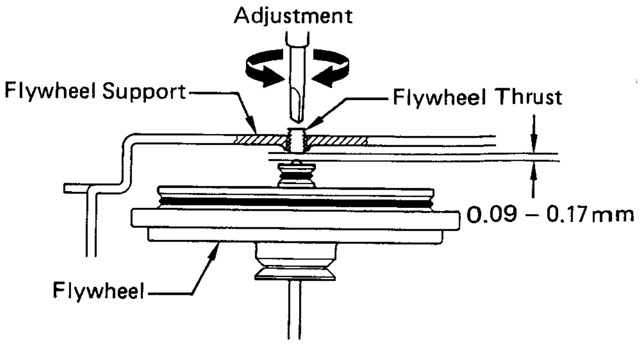
* Measure the pressure the moment the Pinch Roller comes in contact with the Capstan and starts rotating. It should be 230 – 290g.

* If necessary, change the pressure by bending the Spring or replace the Spring with a new one.

3. Check the Pinch Roller. If it has a defective rubber surface, replace it with a new one.

FLYWHEEL THRUST ADJUSTMENT

Check to see that the clearance between the Flywheel Thrust and Flywheel is 0.09 – 0.17mm with the chassis upside down as illustrated. If necessary, adjust the clearance by the following procedure.



1. While moving the Capstan up and down, slowly turn the Flywheel Thrust clockwise to obtain the clearance of "0" between the Thrust and the Flywheel.

   NOTE:
   Do not turn the Flywheel Thrust forcibly.

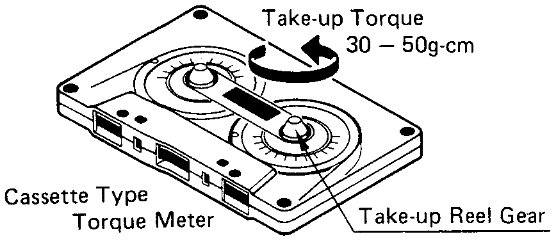
2. Turn the Thrust counter-clockwise by 45° – 90° from the position.

3. After the adjustment, secure the Flywheel Thrust with paint or glue.

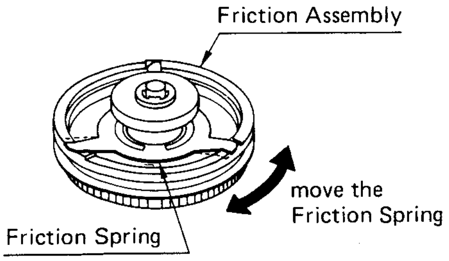
MECHANICAL ADJUSTMENTS (Continued)

TAKE-UP TORQUE ADJUSTMENT

1. Insert the cassette-type torque meter into the unit and measure the torque of the Take-up Reel Gear with the unit in the playback mode. It should be 30 – 50g-cm.


Take-up Torque
30 – 50g-cm
Cassette Type
Torque Meter
Take-up Reel Gear

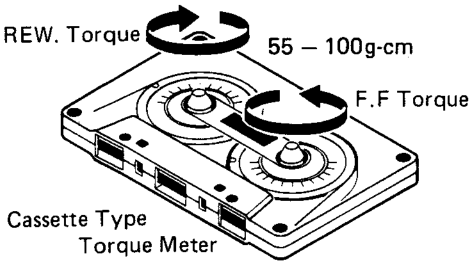
2. If necessary, adjust the torque by moving the Friction Spring of the Friction Assembly as illustrated.


Friction Assembly
move the
Friction Spring
Friction Spring

NOTE:
If the Take-up Reel Gear and Take-up Gear run idle and produce an abnormal sound, adjust the take-up torque as low as possible.

FAST FORWARD & REWIND TORQUE

1. The fast forward and rewind torque value measured by cassette-type torque meter should be 55 – 100g-cm.


REW. Torque
55 – 100g-cm
F.F Torque
Cassette Type
Torque Meter

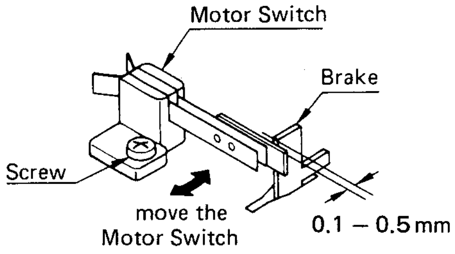
NOTE:
Read the torque values on the torque meter just before the unit automatically shuts off.

2. If the torque value is more than 100g-cm, apply a proper amount of silicone grease (Example: SHIN-ETSU SILICONE KS-64) to the groove of the Friction Assembly.

3. If the torque value is less than 55g-cm, replace the Take-up Belt with a new one.

MOTOR SWITCH ADJUSTMENT

1. Set the unit in the stop mode and check to see that the clearance between the Motor Switch and the Brake is 0.1 – 0.5mm as illustrated, and that the Motor Switch is turned on by pressing one of the Select Buttons (PLAY, F F, or REW).

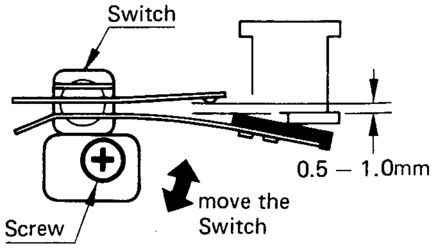

Motor Switch
Brake
Screw
move the
Motor Switch
0.1 – 0.5mm

2. If necessary, loosen the screw fastening the Motor Switch and shift the Switch to the specified position.

3. After the adjustment, tighten the screw and secure it with paint or glue.

MUTING SWITCH ADJUSTMENT

1. This Switch is normally closed. Check to see that the clearance between the both contacts of the switch are 0.5 – 1.0mm with the PLAY button down as illustrated.


Switch
0.5 – 1.0mm
move the
Switch
Screw

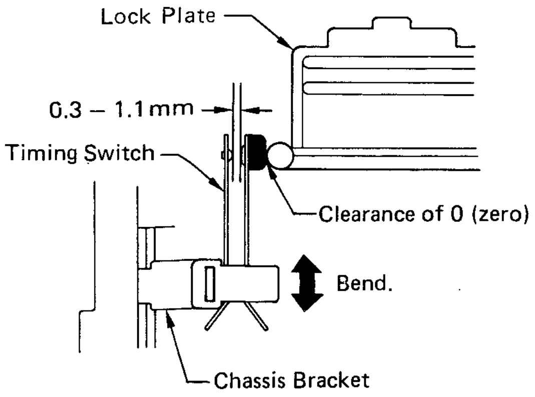
2. If necessary, loosen the screw fastening the Switch and move the Switch to the specified position.

3. After the adjustment, tighten the screw and secure it with paint or glue.

TIMING SWITCH ADJUSTMENT

This switch is normally opened and activates according to the movement of the Lock Plate. The switch also keeps the motor rotating until the auto shut-off mechanism sets the unit in the stop mode and completes its function after it has started functioning in each mode.

1. The clearance between the Switch and the Lock Plate should be "0" (zero) and the clearance between the switch contacts should be 0.3 – 1.1 mm with the unit in the stop mode.
2. If necessary, adjust the switch position by bending the Chassis Bracket as illustrated.



NOTE:
Whenever this switch has been removed or replaced, secure it with bonding material after it is mounted to the Chassis Bracket.

MECHANICAL ADJUSTMENTS (Continued)

AUTO SHUT-OFF MECHANISM

FUNCTION

1. Silicone grease (Example: SHIN-ETSU SILICONE KS-64) is applied to the contacting surfaces of the Bushing and the ASO Lever, and the teeth of the ASO Lever to make the Auto Shut-off mechanism function smoothly.
   If necessary, apply a proper amount of silicone grease to them.

2. The ASO Lever is ordinarily pressed to the Bushing of the Friction Assembly by the spring and moves in the direction of arrow A in accordance with the bushing rotation.

3. The shaft of the ASO Pulley is elliptical in shape like a cam as illustrated and moves the ASO Lever in the direction of arrow B according to the rotation of the ASO Pulley.

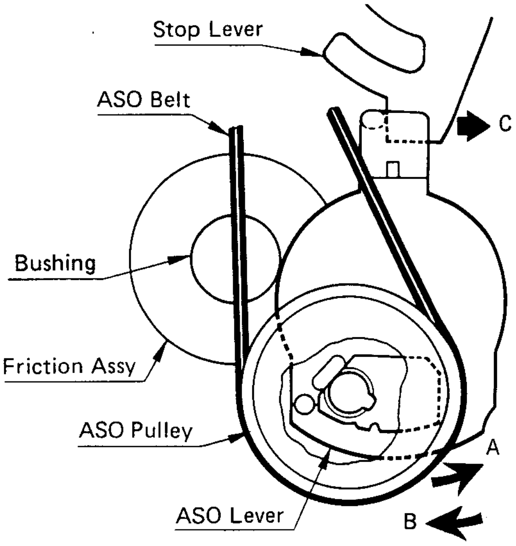
4. The teeth of the ASO Pulley and ASO Lever do not mesh and the shaft moves the ASO Lever back and forth by the above described movements (A and B).

5. When the tape is completely wound to the end, the bushing rotation stops, so that the ASO Lever is moved in the direction of arrow B by the ASO Pulley and it stops moving.

6. While the ASO Pulley is rotating, its tooth is engaged with the first tooth of the ASO Lever and it moves the ASO Lever in the direction of arrow C. Then, the tooth of the ASO Pulley is disengaged from the tooth of the ASO Lever.

7. The ASO Pulley continues rotating, so that its tooth meshes with the second tooth of the ASO Lever and it moves the ASO Lever in the direction of arrow C again.

8. Then, the ASO Lever pushes the Stop Lever in the direction of arrow C, so that the unit is set in the stop mode.



If there is a problem with the the Auto Shut-off mechanism, repair it referring to the following troubleshooting.

SYMPTOM	POSSIBLE CAUSE		REMEDY
ASO mechanism does not work properly.	ASO Spring is unhooked		Repair.
	Grease is not applied suficiently to the circumference of the Bushing or is not applied at all.		Apply grease.
	ASO Lever does not move properly.	Shaft of ASO Lever is clogged by grease or dust.	Remove grease or dust by wiping Shaft of ASO Lever with alcohol.
ASO mechanism does not work at all.	ASO Lever is in contact with Take-up Pulley of Friction Assembly.		Insert the washer below the E ring of the Bushing and keep the clearance between the E ring and the Bushing less than 0.5mm.
	ASO Belt is worn out.		Replace ASO Belt.
	ASO Belt is stained.		Wipe ASO Belt with benzine.

NOTE:
Although there is a case that the button is not locked by pressing one of the Select Buttons (PLAY, FF, or REW) without Power supplied to the unit after the unit has automatically shut off, this symptom is not a mulfunction.

ELECTRICAL ADJUSTMENTS

EQUIPMENTS REQUIRED

- VTVM (two sets)
- Frequency Counter
- Attenuator
- Dummy Loads
  - * 47k-ohm dummy load: to obtain the output from LINE OUT
  - * 100k-ohm dummy load: to obtain the output from the Test Points (TP101 and TP201)
- Audio Signal Generator
- Dualtrace Synchroscope
- Test Tapes
  - * 3kHz test tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  - * 10kHz test tape (Example: TEAC MTT-114) for Head Azimuth Adjustment
  - * Test tape for DOLBY Level Calibration (Example: TEAC MTT-150) in Playback Frequency Response Adjustment
- Test Tapes for recording and playback operations
  - * Normal Tape (Example: TDK AC-221 AD)
  - * Chromium Dioxide Tape (Example: TDK AC-511 SA)
- Alignment Tool

Prior to the Electrical Adjustments, set the unit and the measuring instruments as follows:

* DOLBY NR Switch .... OFF
* Input Select Switch .... MIC
* Equalizer Switch Fe2O3
* Bias Switch Fe2O3
* Tape Speed Switch .... 1-7/8 ips.
* Audio Signal Generator Output 1kHz, 0dB (1V)

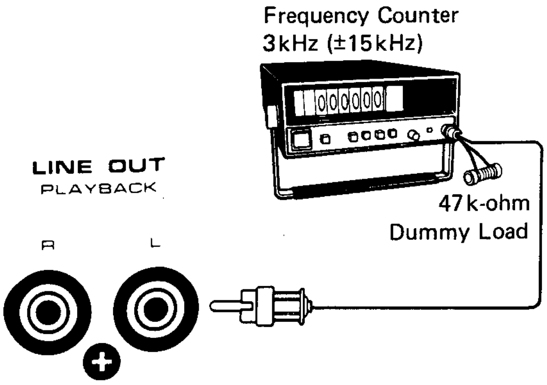
NOTE:

1. The Electrical Adjustment should be performed in the order as described below.

2. Connect the VTVM to the test points (TP101 and TP201) located in the pattern on the Amplifier P.C.Board for the adjustment.

TAPE SPEED ADJUSTMENT

1. Connect the frequency counter to the left or right channel LINE OUT as illustrated. Then, insert the 3kHz test tape (Example: TEAC MTT-111) into the cassette compartment.



2. Check that the Tape Speed Select Switch is positioned to 1-7/8 ips. (4.75cm/sec.) While playing back the test tape, adjust the potentiometer (P401) on the Governor P.C.Board until the frequency counter reads 3kHz (±15kHz).

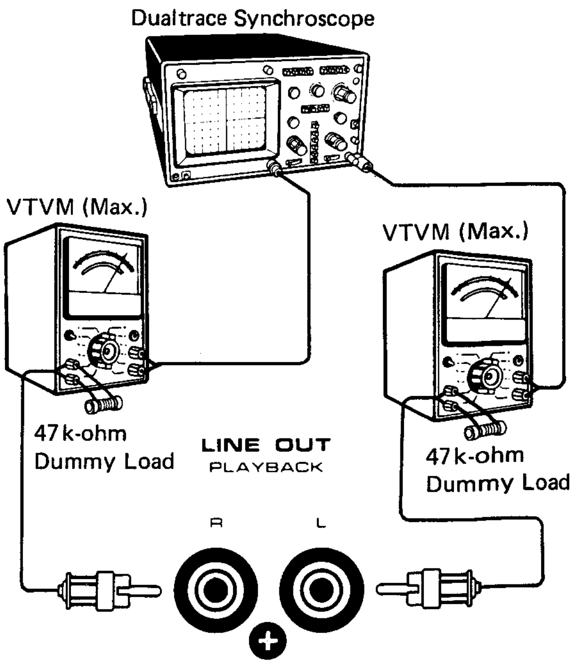
3. Set the Tape Speed Select Switch to 3-3/4 ips. (9.5cm/sec.). While playing back the test tape, adjust the potentiometer (P402) on the Governor P.C.Board until the frequency counter reads 6kHz (±30Hz).

HEAD AZIMUTH ADJUSTMENT

1. Remove the cassette compartment lid from the unit and connect the dualtrace synchroscope and the VTVM to both channel LINE OUT as illustrated. Then, set the dualtrace synchroscope as follows:

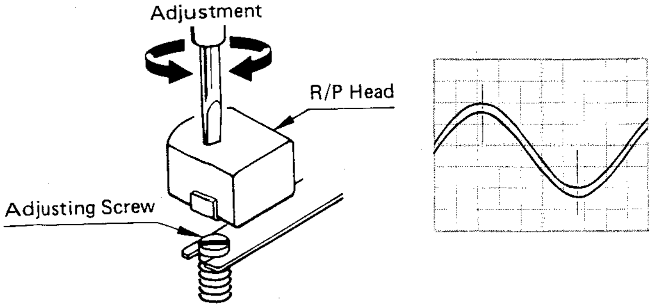
* MODE .... CHOP (chopped)
* SOURCE .... INT (internal), CH1 or CH2
* SWEEP MODE .... AUTO (automatic)

NOTE:
Adjust the field on the synchroscope with the VOLT. ADJ. and TIME ADJ.



2. Insert the 10kHz test tape (Example: TEAC MTT-114) into the cassette compartment. While playing back the test tape, insert the alignment tool into the adjusting hole of the Front Panel and turn the azimuth adjusting screw until the wave forms of the right and left channels are superimposed and then, set to optimum at maximum reading of the VTVM.

ELECTRICAL ADJUSTMENTS (Continued)

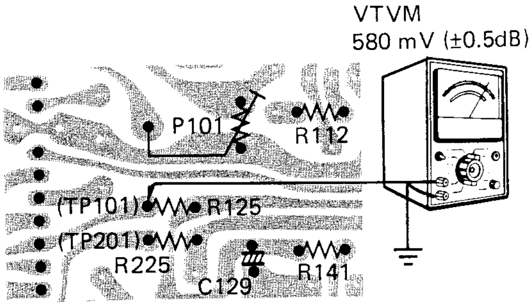

Adjustment
R/P Head
Adjusting Screw

3. After the adjustment, secure the adjusting screw with paint or glue.

PLAYBACK SENSITIVITY ADJUSTMENT

LEFT CHANNEL

1. Connect the VTVM to the test point (TP101) as illustrated and play back the DOLBY Level Calibration Tape (Example: TEAC MTT-150).


VTVM
580 mV (±0.5dB)
P101
R112
(TP101)
R125
(TP201)
R225
C129
R141

2. Adjust the potentiometer (P101) until the output of the test tape becomes 580mV (±0.5dB) on the VTVM.

RIGHT CHANNEL

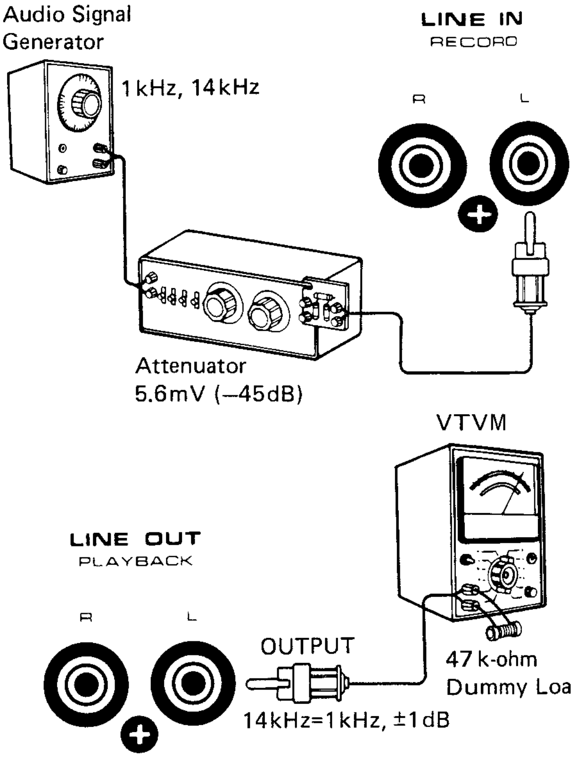
Connect the VTVM to the test point (TP201) and adjust the potentiometer (TP201) for the right channel by following the same procedure as LEFT CHANNEL.

RECORDING & PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

- **For Chromium Dioxide Tape**

LEFT CHANNEL

1. Connect the audio signal generator and the attenuator to the left channel LINE IN, and the VTVM to the left channel LINE OUT as illustrated. Then, insert a chromium dioxide tape (Example: TDK AC-511 SA) into the cassette compartment.


Audio Signal Generator
1kHz, 14kHz
LINE IN
RECORD
R
L
Attenuator
5.6mV (–45dB)
VTVM
LINE OUT
PLAYBACK
R
L
OUTPUT
47 k-ohm Dummy Load
14kHz=1kHz, ±1dB

2. Set the Equalizer and Bias Switches to CrO2.

3. With the INPUT Level Control set to the maximum, alternately record the 1kHz signal and the 14kHz signal from the audio signal generator at 5.6mV (–45dB) on the tape several times.

4. While playing back the recorded signals, check that the 14kHz signal output is identical to 1kHz signal output or the deviation is ±1dB on the VTVM.

5. If not, adjust the potentiometer (P104) and re-check the output of each signal by playing back the signals after the recording operation for the signals.

6. Repeat the above adjustment until the specified output is obtained.

RIGHT CHANNEL

Connect the audio signal generator and the attenuator to the right channel LINE IN, and the VTVM to the right channel LINE OUT. Then, adjust the potentiometer (P204) for the right channel by following the same procedures as LEFT CHANNEL.

ELECTRICAL ADJUSTMENTS (Continued)

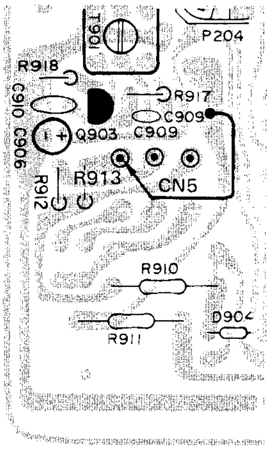
- **For Normal Tape**

Set the Switches as follows:

* Equalizer Switch Fe2O3
* Bias Switch Fe2O3

Then, insert a normal tape (Example: TDK AC-221 AS) into the cassette compartment. Then, perform the recording and playback operations for the signals by following the same conditions and procedures as "Chromium Dioxide Tape".

* Adjustment
Select one of the pins connected to Resistors (R910, R912, and R913) on the Amplifier P.C.Board and plug the connector (CN5) to the pin, so that the 14kHz signal is identical to 1kHz signal output or the deviation is ±2dB on the VTVM for both left and right channels.

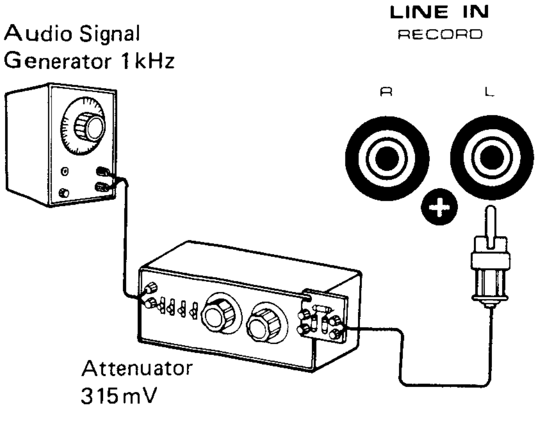


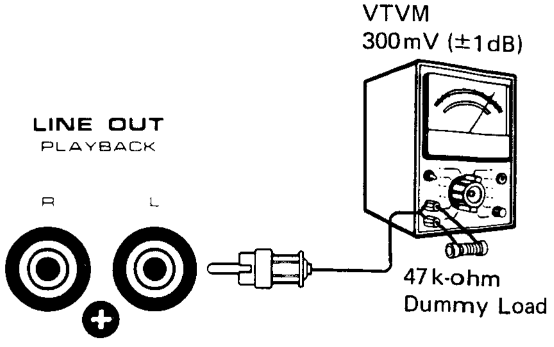
RECORDING SENSITIVITY ADJUSTMENT

When this adjustment is performed, set the Equalizer and Bias Switches to CrO2. A chromium dioxide tape (Example: TDK AC-511 SA) should be used as the test tape.

LEFT CHANNEL

1. Connect the audio signal generator and the attenuator to the left channel LINE IN, and the VTVM to the left channel LINE OUT as illustrated. Then, insert a chromium dioxide tape (Example: TDK AC-511 SA) into the cassette compartment.





2. Place the unit in the recording mode with the PAUSE button down. Feed a 1kHz signal from the audio signal generator at 315mV to the unit and adjust the left channel INPUT Level Control until the VTVM reads 300mV. Then, record the signal on the tape by repressing the PAUSE button.

3. While playing back the recorded signal, check that the VTVM reads 300mV (±1dB).

4. If not, adjust the potentiometer (P102) and re-check the output by playing back the signal after the recording operation for the signal.

5. Repeat the above adjustment until the specified output is obtained.

RIGHT CHANNEL

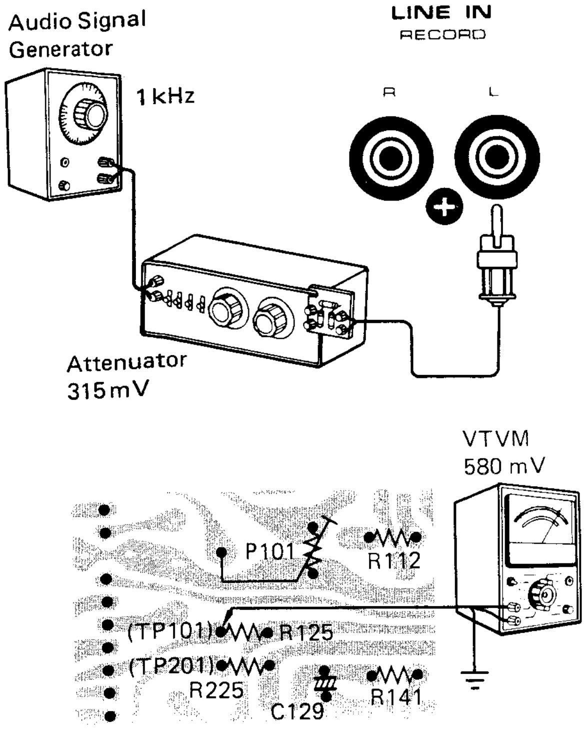
Connect the audio signal generator and the attenuator to the right channel LINE IN, and the VTVM to the right channel LINE OUT. Then, adjust the right channel INPUT Level Control and the potentiometer (P202) for the right channel by following the same procedures as LEFT CHANNEL.

ELECTRICAL ADJUSTMENTS (Continued)

METER SENSITIVITY ADJUSTMENT

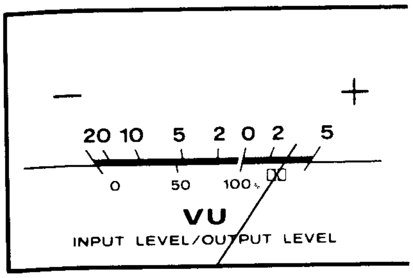
LEFT CHANNEL

1. Connect the audio signal generator and the attenuator to the left channel LINE IN, and the VTVM to the test point (TP101) as illustrated. Then, insert a normal tape into the cassette compartment.


Audio Signal Generator
1 kHz
LINE IN
RECORD
R
L
Attenuator
315mV
VTVM
580 mV
P101
R112
(TP101)
R125
(TP201)
R225
C129
R141

2. Place the unit in the recording mode and feed a 1 kHz signal from the audio signal generator at 315mV to the unit. Then, adjust the left channel INPUT Level Control until the VTVM reads 580mV.

3. Keeping the unit in the recording mode, adjust the potentiometer (P103) until the pointer of the left channel Meter swings to +3VU (DOLBY mark position) as illustrated.


−
+
20 10 5 2 0 2 5
0 50 100%
VU
INPUT LEVEL/OUTPUT LEVEL

RIGHT CHANNEL

Connect the audio signal generator and the attenuator to the right channel LINE IN, and the VTVM to the test point (TP201). Then, adjust the right channel INPUT Level Control and the potentiometer (P203) for the right channel by following the same procedures as LEFT CHANNEL.

PARTS LIST

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.

Ref. No.	Part No.	Description	Q'ty
PACKAGE			
	141 6 1419 42601	Individual Carton (Silver)	1
	141 6 1419 42609	Individual Carton (Black)	1
	141 6 1449 59300	Styrofoam Case	1
	141 6 1449 59400	Styrofoam Case	1
	141 6 2519 09790	Poly Cover	1
	141 6 2519 10025	Poly Cover	1
	141 6 2519 24033	Poly Cover	1
	141 6 4559 00100	Serial No. Sheet	2
	141 6 4799 17100	Colour Label (Silver)	1
	141 6 4799 17200	Colour Label (Black)	1
ACCESSORIES			
	4 2369 70571	Patch Cord	2
	141 6 4119 89901	Instruction Manual	1
	141 6 4519 19400	Warranty Card	1
	141 6 4729 07400	Caution Label	1
	141 6 4729 07700	Caution Label	1
	131 2 1801 13900	Leg	4
CABINET			
	141 0 1119 64001	Front Cabinet Assy (Silver)	1
	141 0 1119 64002	Front Cabinet Assy (Black)	1
	141 2 1119 57501	Cover	1
	141 2 1219 13600	Cassette Lid Panel	1
	141 2 1319 16400	Window	1
	141 2 1339 21301	Head Cover	1
	141 2 1419 09233	Rating Plate	1
	141 2 2449 29600	Panel Sheet	1
	141 2 4219 15500	Screw, Washer	4
	141 2 4219 19000	Dress Screw	2
	141 2 4469 29201	Cushion	2
	143 3 1903 01011	Screw, Brazier Hd. Tapping-B +M3.0x10	8
	141 0 1619 26501	Power Switch Knob Assy (Silver)	1
	141 0 1619 26502	Power Switch Knob Assy (Black)	1
	141 0 1619 26601	Knob Assy (Silver)	4
	141 0 1619 26602	Knob Assy (Black)	4
	141 2 1569 02802	Decorate Switch (Silver)	4
	141 2 1569 02803	Decorate Switch (Black)	4
	141 2 1639 31601	Knob (Silver)	1
	141 2 1639 32302	Knob (Black)	1
	141 2 1639 31701	Knob (Silver)	1
	141 2 1639 32402	Knob (Black)	1
AMPLIFIER P.C.B. ASSY			
	4 1329 75051	Amplifier P.C.B. Assy	1
	141 2 4729 04700	Staple 10	30
	141 2 4729 05800	Staple 15	3
	141 2 4729 05000	Staple 5	4
	141 2 3229 27500	Shield Case	2
CN1	4 2369 71452	Connector 6P	1
CN2	4 2369 71482	Connector 3P	1
	4 2359 70990	RT Pin Socket	1
C101	CC3 3 1500 KD00C	Ceramic 330 pF 50V ±10%	1
C102	CD4 7 5160 0000V	Electrolytic 4.7 μF 16V	1
C103	CC4 7 1500 KD00C	Ceramic 470 pF 50V ±10%	1
C104	CC4 7 0500 KD00C	Ceramic 47 pF 50V ±10%	1
C105	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C106	CD1 0 7100 0001V	Electrolytic 100 μF 10V	1
AMPLIFIER P.C.B. ASSY			
C107	CM1 0 3500 K00SV	Mylar 0.01 μF 50V ±10%	1
C108	CM2 2 3500 K00SV	Mylar 0.022 μF 50V ±10%	1
C111	CC2 2 1500 KD00C	Ceramic 220 pF 50V ±10%	1
C112	CD1 0 5160 0000V	Electrolytic 1 μF 16V	1
C113	CD2 2 7160 0001V	Electrolytic 220 μF 16V	1
C114	CD1 0 5160 0000V	Electrolytic 1 μF 16V	1
C115	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C116	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C117	CM4 7 2500 K00SV	Mylar 0.0047 μF 50V ±10%	1
C118	CM2 7 3500 K00SV	Mylar 0.027 μF 50V ±10%	1
C119	CM4 7 3500 K00SV	Mylar 0.047 μF 50V ±10%	1
C120	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C121	CM5 6 2500 K00SV	Mylar 0.0056 μF 50V ±10%	1
C122	CA1 0 4100 K000V	Aluminum 0.1 μF 10V ±10%	1
C123	CA3 3 4100 K000V	Aluminum 0.33 μF 10V ±10%	1
C124	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C125	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C126	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C127	CD1 0 5160 0000V	Electrolytic 1 μF 16V	1
C128	CD4 7 4160 0000V	Electrolytic 0.47 μF 16V	1
C129	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C130	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C133	CD4 7 5160 0000V	Electrolytic 4.7 μF 16V	1
C134	CC5 0 A500 KD00C	Ceramic 5 pF 50V ±10%	1
C135	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C136	CD2 2 6100 0001V	Electrolytic 22 μF 10V	1
C137	CM2 7 3500 K00SV	Mylar 0.027 μF 50V ±10%	1
C139	CC2 7 2500 KE00C	Ceramic 0.0027 μF 50V ±10%	1
C142	CC4 7 2500 KE00C	Ceramic 0.0047 μF 50V ±10%	1
C143	CC1 8 2500 KE00C	Ceramic 0.0018 μF 50V ±10%	1
C144	CC3 3 1500 KD00C	Ceramic 330 pF 50V ±10%	1
C145	CC1 0 1500 KD00C	Ceramic 100 pF 50V ±10%	1
C146	CC2 2 1500 KD00C	Ceramic 220 pF 50V ±10%	1
C148	CC1 0 2500 KE00C	Ceramic 0.001 μF 50V ±10%	1
C150	CC6 8 1500 KD00C	Ceramic 680 pF 50V ±10%	1
C152	CC4 7 1500 KD00C	Ceramic 470 pF 50V ±10%	1
C153	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C155	CC4 7 0500 KD00C	Ceramic 47 pF 50V ±10%	1
C156	CM1 5 3500 K00SV	Mylar 0.015 μF 50V ±10%	1
C157	CC6 8 2500 KE00C	Ceramic 0.0068 μF 50V ±10%	1
C201	CC3 3 1500 KD00C	Ceramic 330 pF 50V ±10%	1
C202	CD4 7 5160 0000V	Electrolytic 4.7 μF 16V	1
C203	CC4 7 1500 KD00C	Ceramic 470 pF 50V ±10%	1
C204	CC4 7 0500 KD00C	Ceramic 47 pF 50V ±10%	1
C205	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C206	CD1 0 7100 0001V	Electrolytic 100 μF 10V	1
C207	CM1 0 3500 K00SV	Mylar 0.01 μF 50V ±10%	1
C208	CM2 2 3500 K00SV	Mylar 0.022 μF 50V ±10%	1
C211	CC2 2 1500 KD00C	Ceramic 220 pF 50V ±10%	1
C212	CD1 0 5160 0000V	Electrolytic 1 μF 16V	1
C213	CD2 2 7160 0001V	Electrolytic 220 μF 16V	1
C214	CD1 0 5160 0000V	Electrolytic 1 μF 16V	1
C215	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C216	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C217	CM4 7 2500 K00SV	Mylar 0.0047 μF 50V ±10%	1
C218	CM2 7 3500 K00SV	Mylar 0.027 μF 50V ±10%	1
C219	CM4 7 3500 K00SV	Mylar 0.047 μF 50V ±10%	1
C220	CD1 0 6160 0000V	Electrolytic 10 μF 16V	1
C221	CM5 6 2500 K00SV	Mylar 0.0056 μF 50V ±10%	1

PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
AMPLIFIER P.C.B. ASSY			
C222	CA1 0 4100 K000V	Aluminum 0.1 µF 10V ±10%	1
C223	CA3 3 4100 K000V	Aluminum 0.33 µF 10V ±10%	1
C224	CD1 0 6160 0000V	Electrolytic 10 µF 16V	1
C225	CD1 0 6160 0000V	Electrolytic 10 µF 16V	1
C226	CD1 0 6160 0000V	Electrolytic 10 µF 16V	1
C227	CD1 0 5160 0000V	Electrolytic 1 µF 16V	1
C228	CD4 7 4160 0000V	Electrolytic 0.47 µF 16V	1
C229	CD1 0 6160 0000V	Electrolytic 10 µF 16V	1
C230	CD1 0 6160 0000V	Electrolytic 10 µF 16V	1
C233	CD4 7 5160 0000V	Electrolytic 4.7 µF 16V	1
C234	CC5 0 A500 KD00C	Ceramic 5 pF 50V ±10%	1
C235	CD1 0 6160 0000V	Electrolytic 10 µF 16V	1
C236	CD2 2 6100 0001V	Electrolytic 22 µF 10V	1
C237	CM2 7 3500 K00SV	Mylar 0.027 µF 50V ±10%	1
C239	CC2 7 2500 KE00C	Ceramic 0.0027 µF 50V ±10%	1
C242	CC4 7 2500 KE00C	Ceramic 0.0047 µF 50V ±10%	1
C243	CC1 8 2500 KE00C	Ceramic 0.0018 µF 50V ±10%	1
C244	CC3 3 1500 KD00C	Ceramic 330 pF 50V ±10%	1
C245	CC1 0 1500 KD00C	Ceramic 100 pF 50V ±10%	1
C246	CC2 2 1500 KD00C	Ceramic 220 pF 50V ±10%	1
C248	CC1 0 2500 KE00C	Ceramic 0.001 µF 50V ±10%	1
C250	CC6 8 1500 KD00C	Ceramic 680 pF 50V ±10%	1
C252	CC4 7 1500 KD00C	Ceramic 470 pF 50V ±10%	1
C253	CD1 0 6160 0000V	Electrolytic 10 µF 16V	1
C255	CC4 7 0500 KD00C	Ceramic 47 pF 50V ±10%	1
C256	CM1 5 3500 K00SV	Mylar 0.015 µF 50V ±10%	1
C257	CC6 8 2500 KE00C	Ceramic 0.0068 µF 50V ±10%	1
C901	CD4 7 7100 0001V	Electrolytic 470 µF 10V	1
C902	CD4 7 7160 0001V	Electrolytic 470 µF 16V	1
C905	CD1 0 7100 0001V	Electrolytic 100 µF 10V	1
C906	CD1 0 5160 0000V	Electrolytic 1 µF 16V	1
C909	CC1 0 2500 KE00C	Ceramic 0.001 µF 50V ±10%	1
C910	CM6 8 2500 K00SV	Mylar 0.0068 µF 50V ±10%	1
C912	CM3 3 2101 K00NV	Mylar 0.0033 µF 100V ±10%	1
C914	CD1 0 5160 0000V	Electrolytic 1 µF 16V	1
C916	CD1 0 7160 0001V	Electrolytic 100 µF 16V	1
C917	CD1 0 7160 0001V	Electrolytic 100 µF 16V	1
C918	CD4 7 5160 0000V	Electrolytic 4.7 µF 16V	1
C919	CC4 7 3500 ZG00C	Ceramic 0.047 µF 50V +80, −20%	1
C920	CC4 7 3500 ZG00C	Ceramic 0.047 µF 50V +80, −20%	1
C921	CD1 0 8250 0001V	Electrolytic 1000 µF 25V	1
C922	CD4 7 7160 0001V	Electrolytic 470 µF 16V	1
C923	CD1 0 8160 0001V	Electrolytic 1000 µF 16V	1
D101	202 5 9110 18820	Diode, 1S188	1
D102	202 5 9110 18820	Diode, 1S188	1
D201	202 5 9110 18820	Diode, 1S188	1
D202	202 5 9110 18820	Diode, 1S188	1
D901	4 2029 70910	Diode, RD3.3	1
D902	4 2029 70160	Diode, 1S953	1
D904	4 2029 70160	Diode, 1S953	1
D905	4 2029 70160	Diode, 1S953	1
D906	4 2029 70620	Bridge Diode	1
D907	4 2029 70780	Diode, RD15E	1
IC101	4 2069 70860	IC, LM1011 (DOLBY)	1
IC201	4 2069 70860	IC, LM1011 (DOLBY)	1
L101	4 2729 70290	Coil (33 mH)	1
L102	4 2729 70290	Coil (33 mH)	1
L103	4 2729 70340	DOLBY Coil Filter	1
L201	4 2729 70290	Coil (33 mH)	1
L202	4 2729 70290	Coil (33 mH)	1
L203	4 2729 70340	DOLBY Coil Filter	1
	4 2379 70650	Ring Terminal	1
	4 2369 70740	RT Pin	3
P101	4 2229 72968	Potentiometer (B-20 k ohm)	1
P102	4 2229 72968	Potentiometer (B-20 k ohm)	1
P103	4 2229 72968	Potentiometer (B-20 k ohm)	1
P104	4 2229 72971	Potentiometer (B-100 k ohm)	1
P201	4 2229 72968	Potentiometer (B-20 k ohm)	1
P202	4 2229 72968	Potentiometer (B-20 k ohm)	1
P203	4 2229 72968	Potentiometer (B-20 k ohm)	1

Ref. No.	Part No.	Description	Q'ty
AMPLIFIER P.C.B. ASSY			
P204	4 2229 72971	Potentiometer (B-100 k ohm)	1
Q101	203 5 5100 69362	Transistor, 2SC693	1
Q102	203 5 5100 69362	Transistor, 2SC693	1
Q103	4 2039 70431	Transistor, 2SC1815	1
Q105	4 2039 70431	Transistor, 2SC1815	1
Q106	4 2039 70431	Transistor, 2SC1815	1
Q107	203 5 5100 69372	Transistor, 2SC693	1
Q108	4 2039 70431	Transistor, 2SC1815	1
Q109	4 2039 70431	Transistor, 2SC1815	1
Q110	203 5 5100 69362	Transistor, 2SC693	1
Q111	4 2039 70431	Transistor, 2SC1815	1
Q201	203 5 5100 69362	Transistor, 2SC693	1
Q202	203 5 5100 69362	Transistor, 2SC693	1
Q203	4 2039 70431	Transistor, 2SC1815	1
Q205	4 2039 70431	Transistor, 2SC1815	1
Q206	4 2039 70431	Transistor, 2SC1815	1
Q207	203 5 5100 69372	Transistor, 2SC693	1
Q208	4 2039 70431	Transistor, 2SC1815	1
Q209	4 2039 70431	Transistor, 2SC1815	1
Q210	203 5 5100 69352	Transistor, 2SC693	1
Q211	4 2039 70431	Transistor, 2SC1815	1
Q902	4 2039 70431	Transistor, 2SC1815	1
Q903	4 2039 70431	Transistor, 2SC1815	1
Q914	203 5 6940 54560	Transistor, 2SD545	1
Q915	4 2039 70431	Transistor, 2SC1815	1
Q916	4 2039 70431	Transistor, 2SC1815	1
Q917	203 5 7330 61261	Transistor, 2SD612	1
R102	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R103	RD1 8 1251 JV000	Carbon 180 ohm 1/4W ±5%	1
R104	RD4 7 2251 JV000	Carbon 4.7 k ohm 1/4W ±5%	1
R105	RD6 8 1251 JV000	Carbon 680 ohm 1/4W ±5%	1
R106	RD1 2 4251 JV000	Carbon 120 k ohm 1/4W ±5%	1
R107	RD1 1 3251 JV000	Carbon 11 k ohm 1/4W ±5%	1
R108	RD1 5 3251 JV000	Carbon 15 k ohm 1/4W ±5%	1
R109	RD3 9 4251 JV000	Carbon 390 k ohm 1/4W ±5%	1
R110	RD2 2 2251 JM000	Carbon 2.2 k ohm 1/4W ±5%	1
R111	RD3 6 2251 JV000	Carbon 3.6 k ohm 1/4W ±5%	1
R114	RD2 2 2251 JV000	Carbon 2.2 k ohm 1/4W ±5%	1
R116	RD2 2 2251 JV000	Carbon 2.2 k ohm 1/4W ±5%	1
R117	RD3 3 2251 JV000	Carbon 3.3 k ohm 1/4W ±5%	1
R118	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R119	RD1 0 5251 JV000	Carbon 1M ohm 1/4W ±5%	1
R120	RD5 6 4251 JV000	Carbon 560 k ohm 1/4W ±5%	1
R121	RD2 7 4251 JV000	Carbon 270 k ohm 1/4W ±5%	1
R122	RD2 7 4251 JV000	Carbon 270 k ohm 1/4W ±5%	1
R123	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R124	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R125	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R126	RD3 3 2251 JV000	Carbon 3.3 k ohm 1/4W ±5%	1
R127	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R128	RD3 3 4251 JV000	Carbon 330 k ohm 1/4W ±5%	1
R129	RD2 4 3251 JV000	Carbon 24 k ohm 1/4W ±5%	1
R130	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R131	RD3 9 1251 JV000	Carbon 390 ohm 1/4W ±5%	1
R132	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R133	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R134	RD2 2 4251 JV000	Carbon 220 k ohm 1/4W ±5%	1
R135	RD3 3 1251 JV000	Carbon 330 ohm 1/4W ±5%	1
R136	RD1 0 1251 JV000	Carbon 100 ohm 1/4W ±5%	1
R137	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R138	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R139	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R140	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R141	RD1 8 3251 JV000	Carbon 18 k ohm 1/4W ±5%	1
R142	RD1 8 3251 JV000	Carbon 18 k ohm 1/4W ±5%	1
R143	RD3 3 4251 JV000	Carbon 330 k ohm 1/4W ±5%	1
R144	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R145	RD4 7 2251 JV000	Carbon 4.7 k ohm 1/4W ±5%	1
R146	RD5 6 1251 JV000	Carbon 560 ohm 1/4W ±5%	1
R147	RD1 2 3251 JV000	Carbon 12 k ohm 1/4W ±5%	1

PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
AMPLIFIER P.C.B. ASSY			
R148	RD3 3 4251 JV000	Carbon 330 k ohm 1/4W ±5%	1
R149	RD8 2 3251 JV000	Carbon 82 k ohm 1/4W ±5%	1
R154	RD2 2 3251 JV000	Carbon 22 k ohm 1/4W ±5%	1
R155	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R156	RD1 8 3251 JV000	Carbon 18 k ohm 1/4W ±5%	1
R157	RD3 3 3251 JV000	Carbon 33 k ohm 1/4W ±5%	1
R158	RD6 8 2251 JV000	Carbon 6.8 k ohm 1/4W ±5%	1
R159	RD1 2 3251 JV000	Carbon 12 k ohm 1/4W ±5%	1
R160	RD1 0 5251 JV000	Carbon 1M ohm 1/4W ±5%	1
R161	RD1 8 1251 JV000	Carbon 180 ohm 1/4W ±5%	1
R162	RD3 3 3251 JV000	Carbon 33 k ohm 1/4W ±5%	1
R163	RD2 7 2251 JV000	Carbon 2.7 k ohm 1/4W ±5%	1
R164	RD8 2 2251 JV000	Carbon 8.2k ohm 1/4W ±5%	1
R202	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R203	RD1 8 1251 JV000	Carbon 180 ohm 1/4W ±5%	1
R204	RD4 7 2251 JV000	Carbon 4.7 k ohm 1/4W ±5%	1
R205	RD6 8 1251 JV000	Carbon 680 ohm 1/4W ±5%	1
R206	RD1 2 4251 JV000	Carbon 120 k ohm 1/4W ±5%	1
R207	RD1 1 3251 JV000	Carbon 11 k ohm 1/4W ±5%	1
R208	RD1 5 3251 JV000	Carbon 15 k ohm 1/4W ±5%	1
R209	RD3 9 4251 JV000	Carbon 390 k ohm 1/4W ±5%	1
R210	RD2 2 2251 JM000	Carbon 2.2 k ohm 1/4W ±5%	1
R211	RD3 6 2251 JV000	Carbon 3.6 k ohm 1/4W ±5%	1
R214	RD2 2 2251 JV000	Carbon 2.2 k ohm 1/4W ±5%	1
R216	RD2 2 2251 JV000	Carbon 2.2 k ohm 1/4W ±5%	1
R217	RD3 3 2251 JV000	Carbon 3.3 k ohm 1/4W ±5%	1
R218	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R219	RD1 0 5251 JV000	Carbon 1M ohm 1/4W ±5%	1
R220	RD5 6 4251 JV000	Carbon 560 k ohm 1/4W ±5%	1
R221	RD2 7 4251 JV000	Carbon 270 k ohm 1/4W ±5%	1
R222	RD2 7 4251 JV000	Carbon 270 k ohm 1/4W ±5%	1
R223	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R224	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R225	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R226	RD3 3 2251 JV000	Carbon 3.3 k ohm 1/4W ±5%	1
R227	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R228	RD3 3 4251 JV000	Carbon 330 k ohm 1/4W ±5%	1
R229	RD2 4 3251 JV000	Carbon 24 k ohm 1/4W ±5%	1
R230	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R231	RD3 9 1251 JV000	Carbon 390 ohm 1/4W ±5%	1
R232	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R233	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R234	RD2 2 4251 JV000	Carbon 220 k ohm 1/4W ±5%	1
R235	RD3 3 1251 JV000	Carbon 330 ohm 1/4W ±5%	1
R236	RD1 0 1251 JV000	Carbon 100 ohm 1/4W ±5%	1
R237	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R238	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R239	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R240	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R241	RD1 8 3251 JV000	Carbon 18 k ohm 1/4W ±5%	1
R242	RD1 8 3251 JV000	Carbon 18 k ohm 1/4W ±5%	1
R243	RD3 3 4251 JV000	Carbon 330 k ohm 1/4W ±5%	1
R244	RD4 7 3251 JV000	Carbon 47 k ohm 1/4W ±5%	1
R245	RD4 7 2251 JV000	Carbon 4.7 k ohm 1/4W ±5%	1
R246	RD5 6 1251 JV000	Carbon 560 ohm 1/4W ±5%	1
R247	RD1 2 3251 JV000	Carbon 12 k ohm 1/4W ±5%	1
R248	RD3 3 4251 JV000	Carbon 330 k ohm 1/4W ±5%	1
R249	RD8 2 3251 JV000	Carbon 82 k ohm 1/4W ±5%	1
R254	RD2 2 3251 JV000	Carbon 22 k ohm 1/4W ±5%	1
R255	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R256	RD1 8 3251 JV000	Carbon 18 k ohm 1/4W ±5%	1
R257	RD3 3 3251 JV000	Carbon 33 k ohm 1/4W ±5%	1
R258	RD6 8 2251 JV000	Carbon 6.8 k ohm 1/4W ±5%	1
R259	RD1 2 3251 JV000	Carbon 12 k ohm 1/4W ±5%	1
R260	RD1 0 5251 JV000	Carbon 1M ohm 1/4W ±5%	1
R261	RD1 8 1251 JV000	Carbon 180 ohm 1/4W ±5%	1
R262	RD3 3 3251 JV000	Carbon 33 k ohm 1/4W ±5%	1
R263	RD2 7 2251 JV000	Carbon 2.7 k ohm 1/4W ±5%	1
R264	RD8 2 2251 JV000	Carbon 8.2 k ohm 1/4W ±5%	1
R901	RD2 7 2251 JM000	Carbon 2.7 k ohm 1/4W ±5%	1

Ref. No.	Part No.	Description	Q'ty
AMPLIFIER P.C.B. ASSY			
R902	RH1 0 1501 KZ000	Metal 100 ohm 1/2W ±10%	1
R903	RD2 7 2251 JV000	Carbon 2.7 k ohm 1/4W ±5%	1
R904	RD1 0 4251 JM000	Carbon 100 k ohm 1/4W ±5%	1
R910	RH6 8 0501 KZ000	Metal 68 ohm 1/2W ±10%	1
R911	RH1 0 0501 KH000	Metal 10 ohm 1/2W ±10%	1
R912	RD4 7 0251 JV000	Carbon 47 ohm 1/4W ±5%	1
R913	RD1 0 1251 JV000	Carbon 100 ohm 1/4W ±5%	1
R917	RD3 9 3251 JV000	Carbon 39 k ohm 1/4W ±5%	1
R918	RD4 7 A251 JV000	Carbon 4.7 ohm 1/4W ±5%	1
R920	RD2 2 3251 JV000	Carbon 22 k ohm 1/4W ±5%	1
R921	RD1 0 2251 JV000	Carbon 1 k ohm 1/4W ±5%	1
R922	RD3 3 2251 JV000	Carbon 3.3 k ohm 1/4W ±5%	1
R923	RD3 3 4251 JV000	Carbon 330 k ohm 1/4W ±5%	1
R924	RD5 6 3251 JV000	Carbon 56 k ohm 1/4W ±5%	1
R925	RH3 3 A202 KZ000	Metal 3.3 ohm 2W ±10%	1
R926	RD8 2 1251 JV000	Carbon 820 ohm 1/4W ±5%	1
R927	RD5 6 A251 JV000	Carbon 5.6 ohm 1/4W ±5%	1
S1	4 2319 73900	Slide Switch (Record/Play)	1
S2	4 2319 73880	Slide Switch Lever (DOLBY NR)	1
S3	4 2319 73161	Slide Switch Lever (Input Select)	1
S4	4 2319 73890	Slide Switch Lever (EQ)	1
S5	4 2319 73161	Slide Switch Lever (Bias)	1
T901	4 2589 71540	OSC Transformer	1
	4 2379 70650	Ring Terminal	1
MICROPHONE JACK P.C.B. ASSY			
	4 1329 75080	Microphone Jack P.C.B. Assy	
C151	CC1 0 2500 KE00C	Ceramic 0.001 µF 50V ±10%	1
C251	CC1 0 2500 KE00C	Ceramic 0.001 µF 50V ±10%	1
J1	4 2359 73903	Jack 1P (Microphone, Left)	1
J2	4 2359 73903	Jack 1P (Microphone, Right)	1
R101	RD1 0 3251 JM000	Carbon 10 k ohm 1/4W ±5%	1
R201	RD1 0 3251 JM000	Carbon 10 k ohm 1/4W ±5%	1
FUSE P.C.B. ASSY			
	4 1329 75190	Fuse P.C.B. Assy	1
	4 2359 70910	Fuse Holder	2
F1	⚠ 4 2349 70040	Fuse (500mA)	1
	4 2269 32490	Fuse P.C.B.	1
CIRCUIT JACK P.C.B. ASSY			
	4 1329 75200	Circuit Jack P.C.B. Assy	1
	141 2 4729 04700	Staple 10	1
C158	CD4 7 4160 0000V	Electrolytic 0.47 µF 16V	1
C159	CC5 0 A500 KD00C	Ceramic 5 pF 50V ±10%	1
C160	CD4 7 5160 0000V	Electrolytic 4.7 µF 16V	1
C258	CD4 7 4160 0000V	Electrolytic 0.47 µF 16V	1
C259	CC5 0 A500 KD00C	Ceramic 5 pF 50V ±10%	1
C260	CD4 7 5160 0000V	Electrolytic 4.7 µF 16V	1
C930	CD2 2 7160 0001V	Electrolytic 220 µF 16V	1
Q112	203 5 5100 69362	Transistor, 2SC693	1
Q212	203 5 5100 69362	Transistor, 2SC693	1
R165	RD1 2 4251 JV000	Carbon 120 k ohm 1/4W ±5%	1
R166	RD4 7 4251 JV000	Carbon 470 k ohm 1/4W ±5%	1
R167	RD7 5 3251 JV000	Carbon 75 k ohm 1/4W ±5%	1
R168	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R169	RD1 3 2251 JV000	Carbon 1.3 k ohm 1/4W ±5%	1
R170	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R171	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R265	RD1 2 4251 JV000	Carbon 120 k ohm 1/4W ±5%	1
R266	RD4 7 4251 JV000	Carbon 470 k ohm 1/4W ±5%	1
R267	RD7 5 3251 JV000	Carbon 75 k ohm 1/4W ±5%	1
R268	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R269	RD1 3 2251 JV000	Carbon 1.3 k ohm 1/4W ±5%	1
R270	RD1 0 3251 JV000	Carbon 10 k ohm 1/4W ±5%	1
R271	RD6 8 3251 JV000	Carbon 68 k ohm 1/4W ±5%	1
R930	RD3 9 2251 JV000	Carbon 3.9 k ohm 1/4W ±5%	1
J4	4 2359 73600	Jack 2P (Line In)	1
J5	4 2359 73600	Jack 2P (Line Out)	1

PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
VOLUME CONTROL P.C.B. ASSY			
	4 1329 75320	Volume Control P.C.B. Assy	1
	4 2269 32220	Volume P.C.B.	1
VR1	4 2229 71763	Volume Control (Input Level, A-20 k)	1
MECHANISM			
S6	4 2319 72010	Leaf Switch (Motor)	1
S7	4 2319 72772	Leaf Switch (Timing)	1
S8	4 2319 73110	Leaf Switch (Muting)	1
S9	4 2319 73970	Power Switch (Power)	1
S10	⚠ 4 2319 72140	Slide Switch (Voltage Select)	1
CN1	4 2359 72072	Connector 6P	1
CN2	4 2359 72112	Connector 3P	1
J3	4 2359 73902	Jack 1P (Headphone)	1
	⚠ 4 2379 70560	Terminal	1
	4 2379 70650	Ring Terminal	2
HD1	4 2429 71510	R/P Head	1
HD2	4 2429 71520	Erase Head	1
	⚠ 4 2439 70352	Power Cord	1
T902	⚠ 4 2519 72990	Power Transformer	1
ME1	4 5119 70560	Indicator (PL901, PL902)	1
	4 5279 70836	Motor	1
	141 0 3119 14509	Chassis Assy	1
	141 0 3169 04800	Chassis Bracket Assy	1
	141 0 3519 14901	Record Bracket Assy	1
	141 0 5219 03901	Flywheel Assy	1
	141 0 5419 02401	Pinch Roller Assy	1
	141 2 3529 26300	Spacer, Stop Lever	1
	141 2 3529 26400	Spacer, Lever	1
	141 2 4219 02900	Screw	1
	141 2 4539 20100	Washer, Spring	1
	141 2 7419 62900	Stop Base Lever	1
	141 0 5519 05901	Friction Assy	1
	141 0 5519 06400	Gear Eject Assy	1
	141 0 7439 05400	Arm Fast Wind Assy	1
	141 0 7439 06300	Take-up Arm Assy	1
	141 2 8519 75300	Spring, Pause Lever	1
	141 2 1149 18701	Cabinet Compartment (Silver)	1
	141 2 1149 18700	Cabinet Compartment (Black)	1
	141 2 1149 20300	Chassis Panel	1
	141 2 1249 21400	Cassette Lid Frame	1
	141 2 1519 12201	Reflector	1
	141 2 1619 52203	Button Lever (Silver)	1
	141 2 1619 52207	Button Lever (Sliver)	5
	141 2 1619 52201	Button Lever (Black)	6
	141 2 1619 62401	Button Reset	1
	141 2 1749 02500	Foot	4
	141 2 2149 13100	Cassette Lid Arm	1
	141 2 2149 13101	Cassette Lid Arm	1
	141 2 2149 13200	Cassette Lid Bracket	1
	141 2 2719 13300	Spacer, Handle	2
	141 2 3119 12104	Chassis Cabinet	1
	141 2 3519 36901	Flywheel Support	1
	141 2 3529 17800	Spacer, Head	1
	141 2 3529 17900	Spacer, Brake	1
	141 2 3529 18101	Spacer, Head	1
	141 2 3529 19100	Spacer, Base	1
	141 2 3529 19401	Spacer, Gear	1
	141 2 3719 04100	Bracket Transformer	1
	141 2 3769 08300	R/P Head Post	1
	141 2 3899 06900	Clamp, Power Cord	1
	141 2 3899 08300	Cord Holder	1
	141 2 4219 04000	Screw	1
	141 2 4219 05400	Screw, Washer	3
	141 2 4219 11600	Screw	2
	141 2 4219 12100	Screw, Washer	1
	141 2 4219 13200	Screw, Washer	4
	141 2 4219 17900	Screw, Pan Hd. +M2.6x2.7	2
	141 2 4359 16600	Insulator	1
	141 2 4459 20501	Brake Cover	2
	141 2 4469 00500	Flywheel Thrust	1

Ref. No.	Part No.	Description	Q'ty
MECHANISM			
	141 2 4469 28101	Cushion	1
	141 2 4469 32300	Cushion	2
	141 2 4539 15800	Washer	2
	141 2 4539 17600	Washer	1
	141 2 4539 18400	Washer	1
	141 2 4729 04100	Lug	1
	141 2 4729 04200	Lug	2
	141 2 4729 05300	Wire Band	1
	141 2 5319 05100	Reel Gear	2
	141 2 5319 07000	Reel Fin	2
	141 2 5369 00400	Cap, Reel Plate	2
	141 2 5519 04400	Intermediate Pulley	1
	141 2 5519 22000	Take-up Gear	1
	141 2 5519 22300	Fast Wind Gear	2
	141 2 5519 22400	Rewind Gear	1
	141 2 5519 27200	Auto Shut-off Pulley	1
	141 2 5559 04500	Eject Plate Gear	1
	141 2 5649 09900	Take-up Belt	1
	141 2 5649 11000	Drive Belt	1
	141 2 5649 11100	Auto Shut-off Belt	1
	141 2 5649 11200	Counter Belt	1
	141 2 6129 04500	Spindle Button Lever	1
	141 2 6139 13101	Button Frame	1
	141 2 7149 03400	Brake	1
	141 2 7319 31102	Plate	1
	141 2 7319 32200	Slide Base Plate	1
	141 2 7319 33000	Cassette Lid Lock Plate	1
	141 2 7319 33100	Lock Plate	1
	141 2 7319 34000	Pause Plate	1
	141 2 7359 01600	Record Wire	1
	141 2 7419 48100	Fast Wind Lever	1
	141 2 7419 48300	Record Stop Lever	1
	141 2 7419 51100	Select Lever	1
	141 2 7419 51500	Record Lever	1
	141 2 7419 51600	Auto Shut-off Lever	1
	141 2 7419 51700	Stop Lever	1
	141 2 7419 51900	Eject Stop Lever	1
	141 2 7419 53500	Record Link Lever	1
	141 2 7419 55900	Pause Lever	1
	141 2 8119 07100	Counter	1
	141 2 8139 05100	Counter Bracket	1
	141 2 8219 24400	Chip, Cassette Lid Lock	1
	141 2 8419 09400	Interlock Lever	1
	141 2 8429 05400	Record Plate	1
	141 2 8519 03600	Spring, Shut-off Lever	1
	141 2 8519 19300	Spring, Brake	1
	141 2 8519 47400	Spring, Head	1
	141 2 8519 67100	Spring, Fast Wind	1
	141 2 8519 67700	Spring, Pinch Roller	1
	141 2 8519 67900	Spring, Reel	2
	141 2 8519 68100	Spring, Pause	1
	141 2 8519 70100	Spring, Button Lever	3
	141 2 8519 70200	Spring, Slide Base	1
	141 2 8519 70300	Spring, Pause Plate	2
	141 2 8519 70400	Spring, Slide Base Plate	1
	141 2 8519 70500	Spring, Record Plate	1
	141 2 8519 71700	Spring, Cassette Lid	1
	141 2 8519 71800	Spring, Interlock	1
	141 2 8519 71900	Spring, Take-up Arm	1
	141 2 8519 72000	Spring, Auto Shut-off	1
	141 2 8519 73400	Spring, Stop Lever	1
	141 2 8519 76100	Spring	1
	141 2 8519 80400	Spring, Earth	1
	141 2 8519 80500	Spring, Record Lever	1
	141 2 8539 31000	Spring, Base	1
	141 2 8539 31300	Spring, Cassette	1
	141 2 8539 31400	Spring, Cassette	2
	141 2 8539 35800	Spring, Flywheel	1
	101 3 1302 00411	Screw, Pan Hd. +M2.0x4	2
	101 3 1303 01611	Screw, Pan Hd. +M3.0x16	3

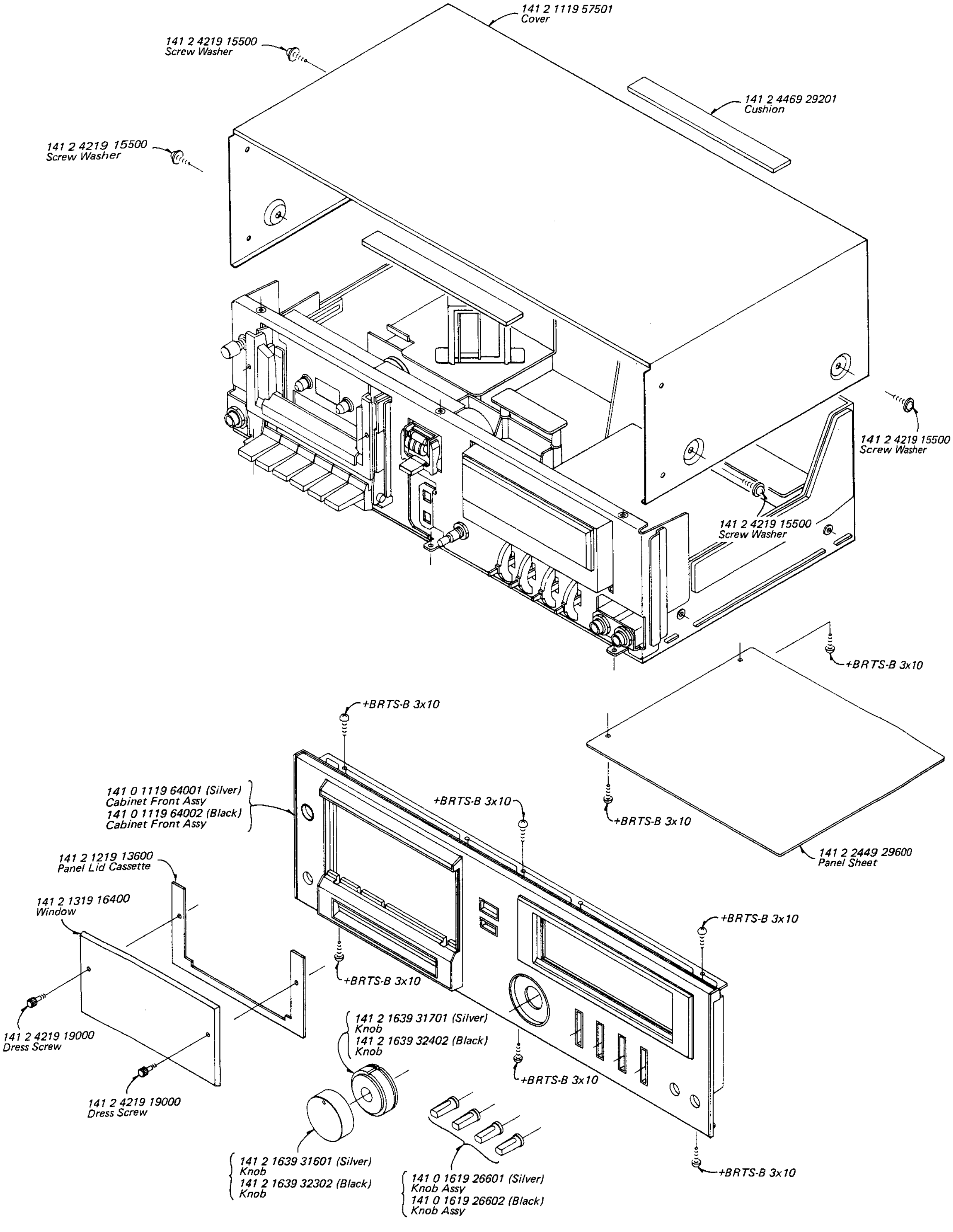
PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
MECHANISM			
	101 3 1702 008 11	Screw, Bind Hd. +M2.0x8	1
	101 3 1702 010 11	Screw, Bind Hd. +M2.0x10	2
	101 3 2502 010 11	Screw, Cylinder Hd. -M2.0x10	1
	103 3 1302 006 18	Screw, Pan Hd. Tapping-2 +M2.0x6	7
	103 3 1302 606 11	Screw, Pan Hd. Tapping-2 +M2.6x6	6
	103 3 1302 612 11	Screw, Pan Hd. Tapping-2 +M2.6x12	2
	103 3 1303 005 11	Screw, Pan Hd. Tapping-2 +M3.0x5	4
	103 3 1702 608 11	Screw, Bind Hd. Tapping-2 +M2.6x8	2
	104 3 1702 006 11	Screw, Bind Hd. Tapping-3 +M2.0x6	2
	110 3 9260 60025	Washer M2.6x6.0x0.2	1
	112 3 1302 00082	E Ring M2.0	2
	112 3 1302 50082	E Ring M2.5	1
	131 3 1303 005 11	Screw, Pan Hd. C SW +M3.0x5	11
	135 3 1303 006 11	Screw, Pan Hd. C PW +M3.0x6	1
	143 3 1302 608 11	Screw, Pan Hd. Tapping-B +M2.6x8	1
	143 3 1302 608 18	Screw, Pan Hd. Tapping-B +M2.6x8	4
	143 3 1303 008 11	Screw, Pan Hd. Tapping-B +M3.0x8	2
	143 3 1303 010 11	Screw, Pan Hd. Tapping-B +M3.0x10	1
	143 3 1903 010 11	Screw, Brazier Hd. Tapping-B +M3.0x10	21
	143 3 1903 012 18	Screw, Brazier Hd. Tapping-B +M3.0x12	2

NOTES:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

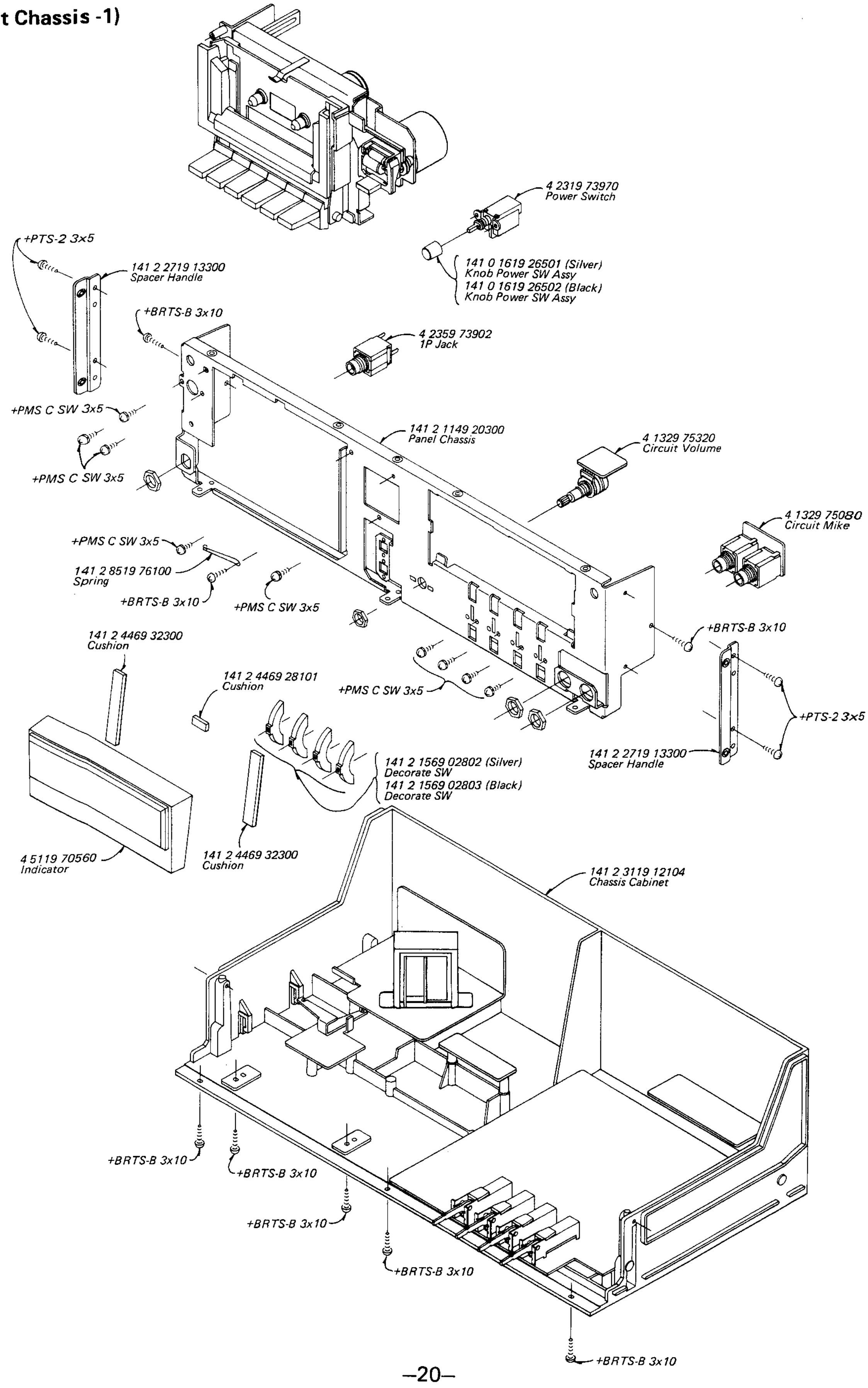
EXPLODED VIEW

(Cabinet)


141 2 1119 57501
Cover
141 2 4219 15500
Screw Washer
141 2 4469 29201
Cushion
141 2 4219 15500
Screw Washer
141 2 4219 15500
Screw Washer
141 2 4219 15500
Screw Washer
+BRTS-B 3x10
+BRTS-B 3x10
141 0 1119 64001 (Silver)
Cabinet Front Assy
141 0 1119 64002 (Black)
Cabinet Front Assy
+BRTS-B 3x10
+BRTS-B 3x10
141 2 2449 29600
Panel Sheet
141 2 1219 13600
Panel Lid Cassette
141 2 1319 16400
Window
+BRTS-B 3x10
+BRTS-B 3x10
141 2 1639 31701 (Silver)
Knob
141 2 1639 32402 (Black)
Knob
141 2 4219 19000
Dress Screw
+BRTS-B 3x10
141 2 4219 19000
Dress Screw
141 2 1639 31601 (Silver)
Knob
141 2 1639 32302 (Black)
Knob
141 0 1619 26601 (Silver)
Knob Assy
141 0 1619 26602 (Black)
Knob Assy
+BRTS-B 3x10

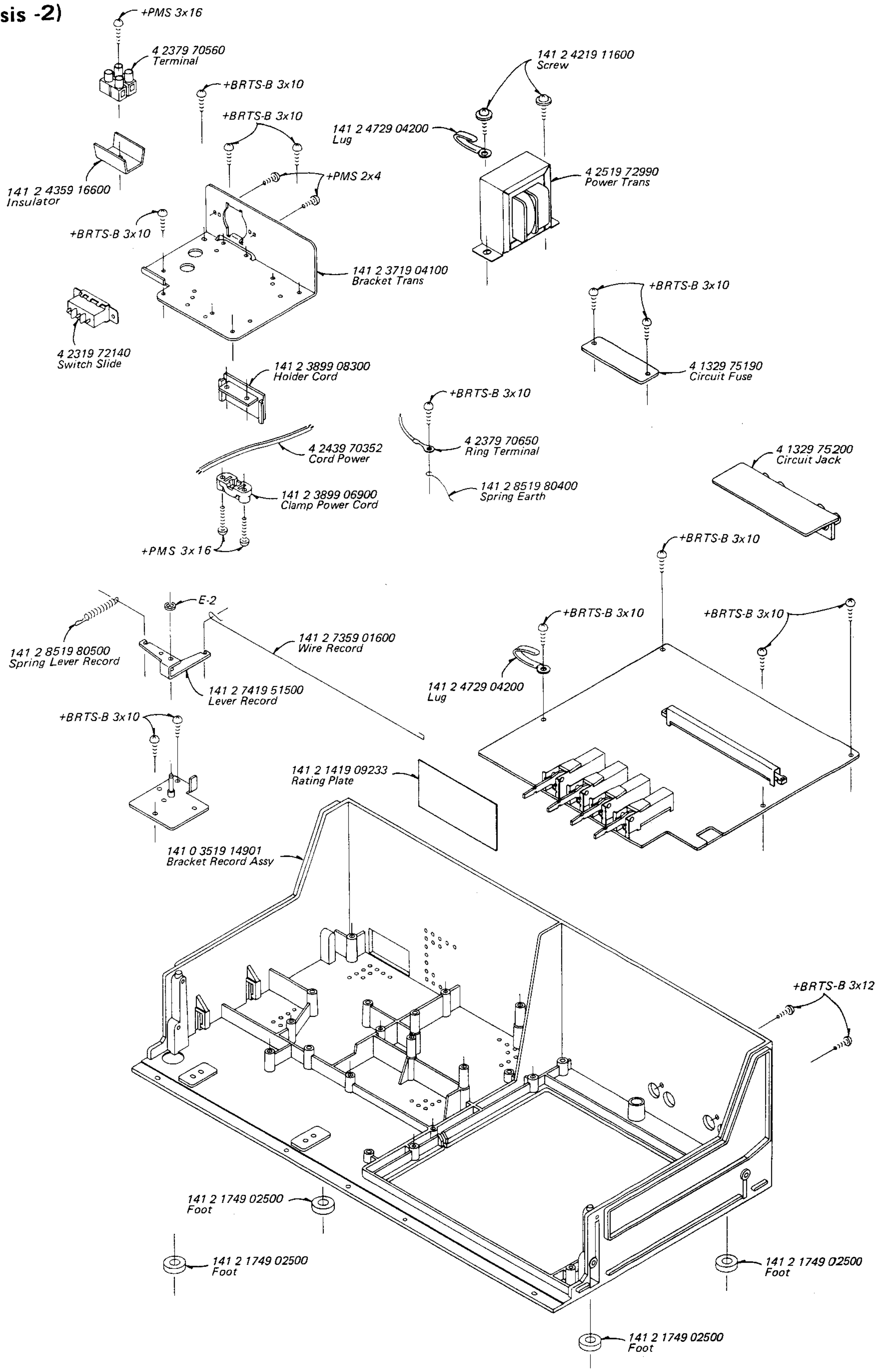
EXPLODED VIEW (Continued)

(Cabinet Chassis -1)


4 2319 73970
Power Switch
141 0 1619 26501 (Silver)
Knob Power SW Assy
141 0 1619 26502 (Black)
Knob Power SW Assy
+PTS-2 3x5
141 2 2719 13300
Spacer Handle
+BRTS-B 3x10
4 2359 73902
1P Jack
+PMS C SW 3x5
141 2 1149 20300
Panel Chassis
4 1329 75320
Circuit Volume
+PMS C SW 3x5
4 1329 75080
Circuit Mike
+PMS C SW 3x5
141 2 8519 76100
Spring
+BRTS-B 3x10
+PMS C SW 3x5
+BRTS-B 3x10
141 2 4469 32300
Cushion
141 2 4469 28101
Cushion
+PMS C SW 3x5
+PTS-2 3x5
141 2 1569 02802 (Silver)
Decorate SW
141 2 1569 02803 (Black)
Decorate SW
141 2 2719 13300
Spacer Handle
4 5119 70560
Indicator
141 2 4469 32300
Cushion
141 2 3119 12104
Chassis Cabinet
+BRTS-B 3x10
+BRTS-B 3x10
+BRTS-B 3x10
+BRTS-B 3x10
+BRTS-B 3x10

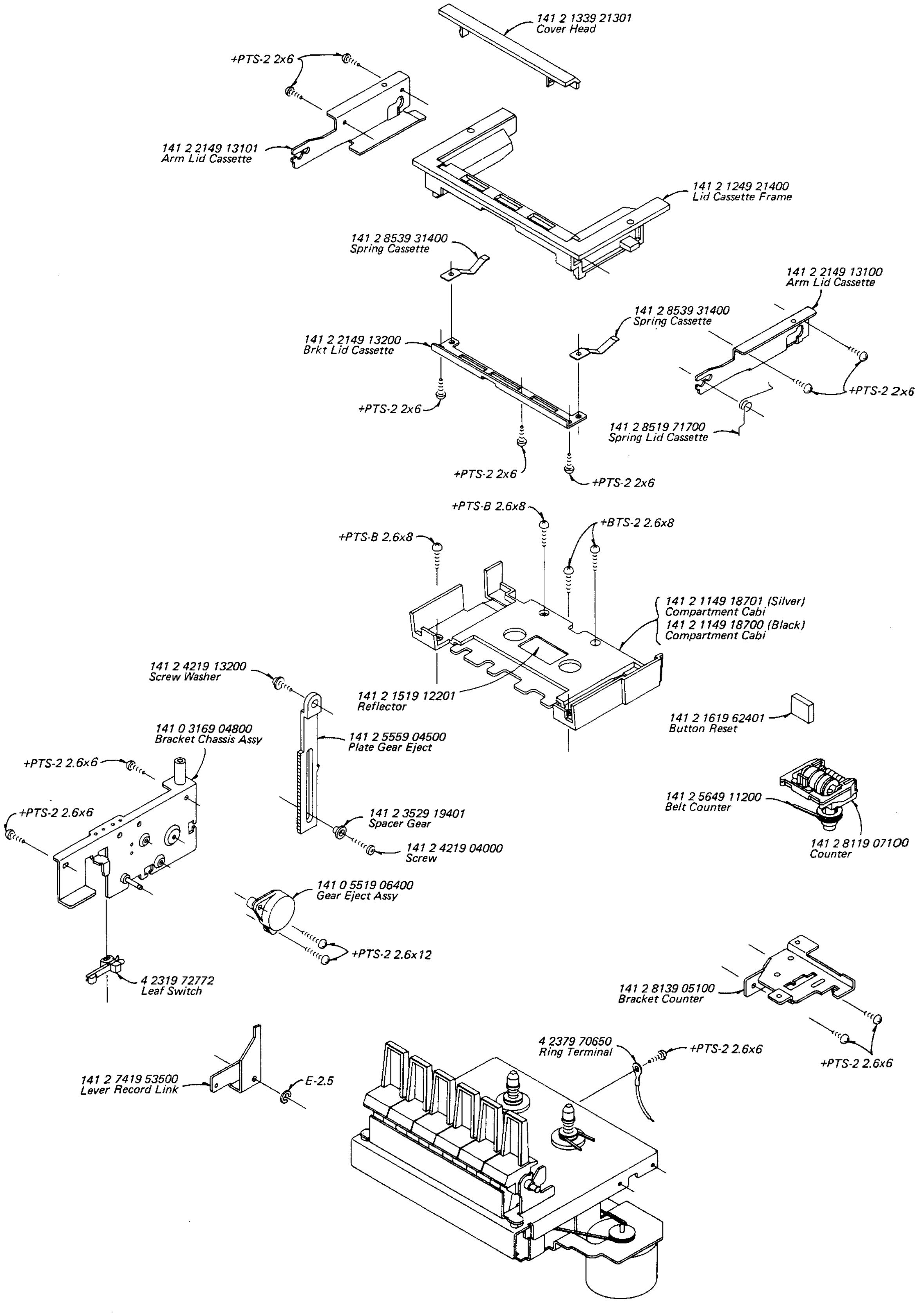
EXPLODED VIEW (Continued)

(Cabinet Chassis -2)


+PMS 3x16
4 2379 70560
Terminal
+BRTS-B 3x10
+BRTS-B 3x10
141 2 4359 16600
Insulator
+PMS 2x4
+BRTS-B 3x10
141 2 3719 04100
Bracket Trans
4 2319 72140
Switch Slide
141 2 4219 11600
Screw
141 2 4729 04200
Lug
4 2519 72990
Power Trans
+BRTS-B 3x10
4 1329 75190
Circuit Fuse
141 2 3899 08300
Holder Cord
+BRTS-B 3x10
4 2439 70352
Cord Power
4 2379 70650
Ring Terminal
141 2 3899 06900
Clamp Power Cord
141 2 8519 80400
Spring Earth
4 1329 75200
Circuit Jack
+PMS 3x16
+BRTS-B 3x10
E-2
141 2 7359 01600
Wire Record
+BRTS-B 3x10
+BRTS-B 3x10
141 2 8519 80500
Spring Lever Record
141 2 7419 51500
Lever Record
141 2 4729 04200
Lug
+BRTS-B 3x10
141 2 1419 09233
Rating Plate
141 0 3519 14901
Bracket Record Assy
+BRTS-B 3x12
141 2 1749 02500
Foot
141 2 1749 02500
Foot
141 2 1749 02500
Foot
141 2 1749 02500
Foot

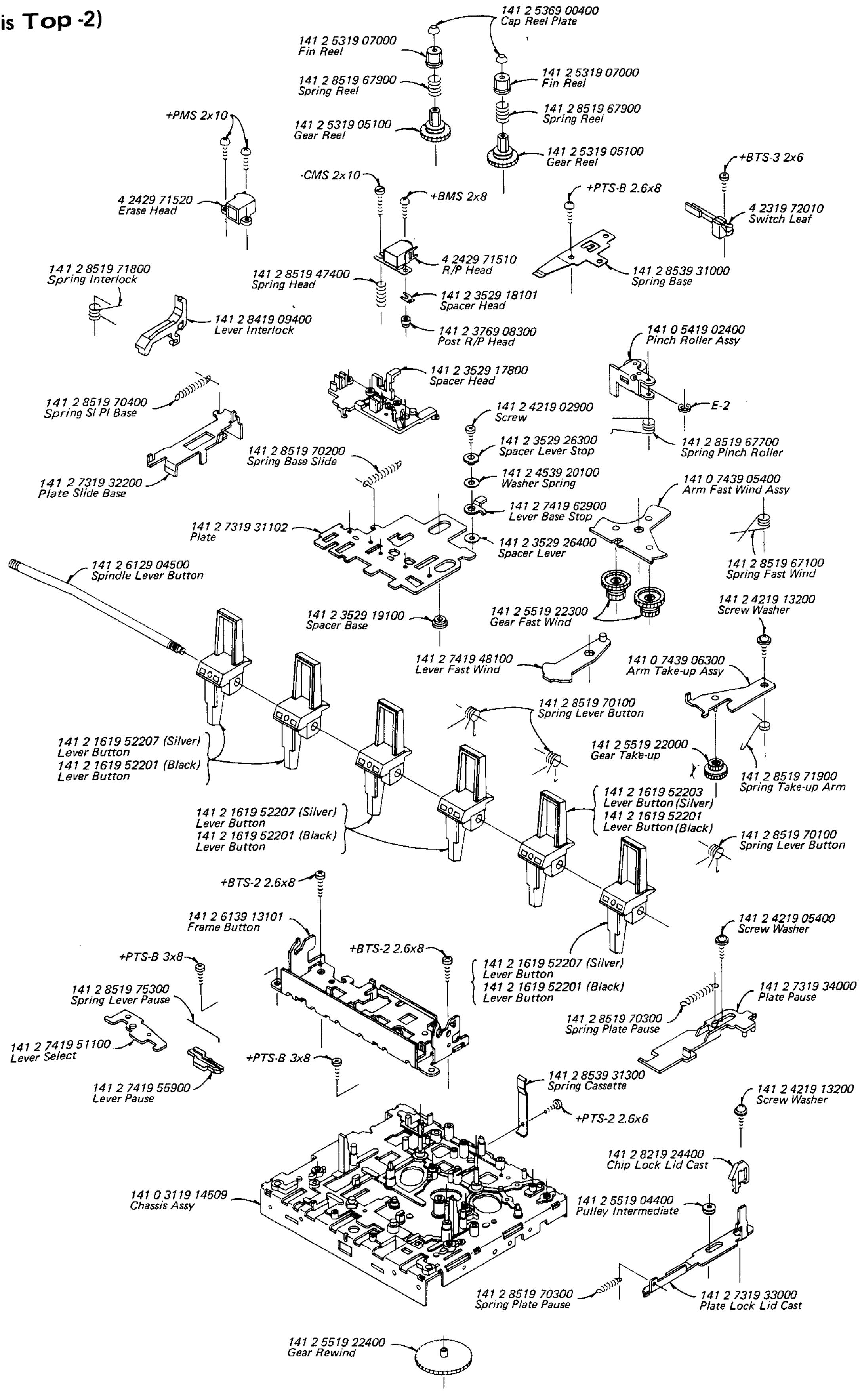
EXPLODED VIEW (Continued)

(Chassis Top -1)


141 2 1339 21301
Cover Head
+PTS-2 2x6
141 2 2149 13101
Arm Lid Cassette
141 2 1249 21400
Lid Cassette Frame
141 2 8539 31400
Spring Cassette
141 2 2149 13100
Arm Lid Cassette
141 2 8539 31400
Spring Cassette
141 2 2149 13200
Brkt Lid Cassette
+PTS-2 2x6
+PTS-2 2x6
141 2 8519 71700
Spring Lid Cassette
+PTS-2 2x6
+PTS-2 2x6
+PTS-B 2.6x8
+BTS-2 2.6x8
+PTS-B 2.6x8
141 2 1149 18701 (Silver)
Compartment Cabi
141 2 1149 18700 (Black)
Compartment Cabi
141 2 4219 13200
Screw Washer
141 2 1519 12201
Reflector
141 2 1619 62401
Button Reset
141 0 3169 04800
Bracket Chassis Assy
141 2 5559 04500
Plate Gear Eject
+PTS-2 2.6x6
+PTS-2 2.6x6
141 2 5649 11200
Belt Counter
141 2 3529 19401
Spacer Gear
141 2 4219 04000
Screw
141 2 8119 07100
Counter
141 0 5519 06400
Gear Eject Assy
+PTS-2 2.6x12
4 2319 72772
Leaf Switch
141 2 8139 05100
Bracket Counter
4 2379 70650
Ring Terminal
+PTS-2 2.6x6
+PTS-2 2.6x6
141 2 7419 53500
Lever Record Link
E-2.5

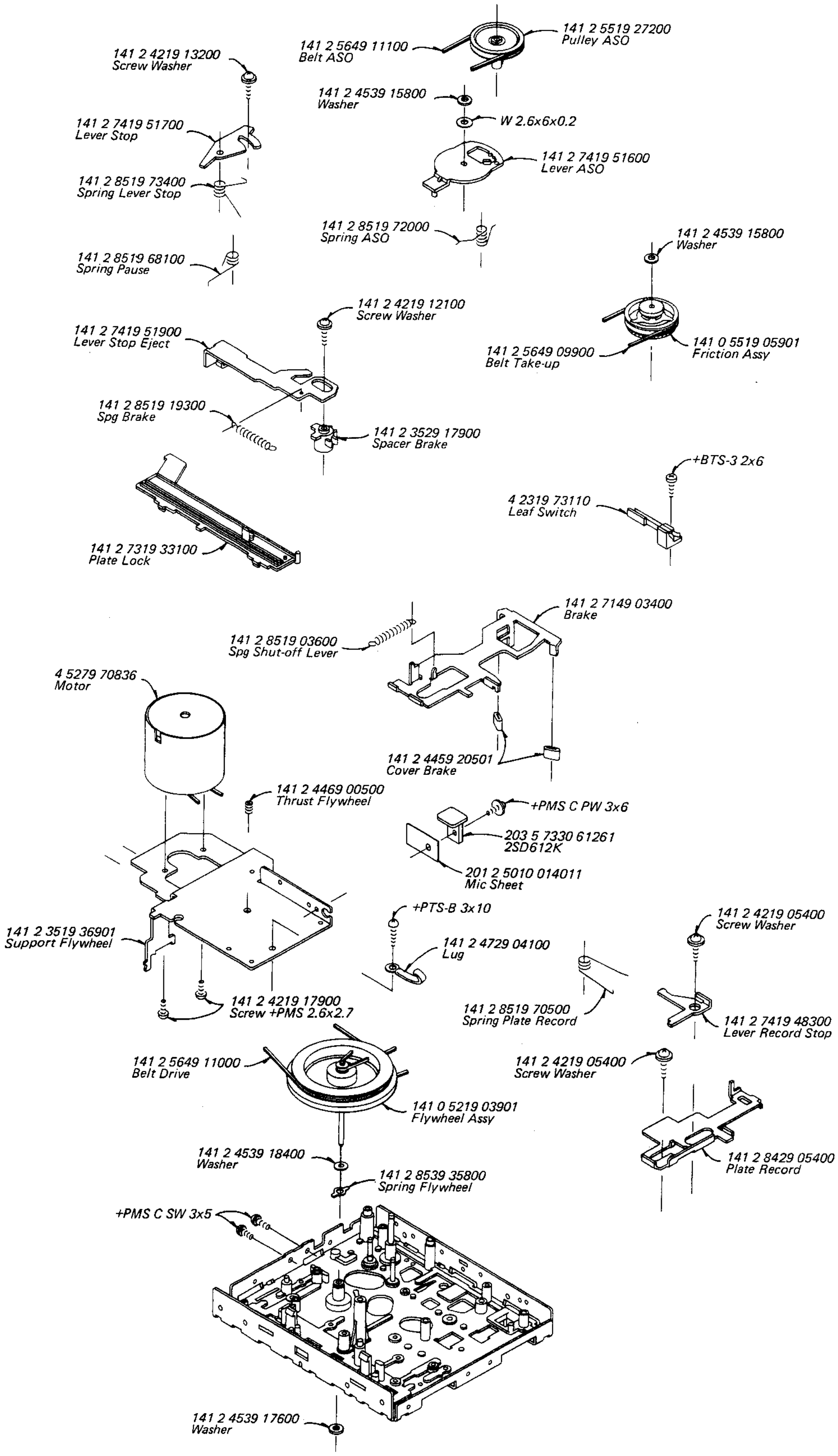
EXPLODED VIEW (Continued)

(Chassis Top -2)


141 2 5369 00400
Cap Reel Plate
141 2 5319 07000
Fin Reel
141 2 8519 67900
Spring Reel
141 2 5319 05100
Gear Reel
141 2 5319 07000
Fin Reel
141 2 8519 67900
Spring Reel
141 2 5319 05100
Gear Reel
+PMS 2x10
+BTS-3 2x6
-CMS 2x10
+BMS 2x8
+PTS-B 2.6x8
4 2429 71520
Erase Head
4 2319 72010
Switch Leaf
4 2429 71510
R/P Head
141 2 8519 71800
Spring Interlock
141 2 8519 47400
Spring Head
141 2 8539 31000
Spring Base
141 2 3529 18101
Spacer Head
141 2 8419 09400
Lever Interlock
141 2 3769 08300
Post R/P Head
141 0 5419 02400
Pinch Roller Assy
141 2 3529 17800
Spacer Head
141 2 8519 70400
Spring Sl Pl Base
141 2 4219 02900
Screw
E-2
141 2 3529 26300
Spacer Lever Stop
141 2 8519 67700
Spring Pinch Roller
141 2 8519 70200
Spring Base Slide
141 2 4539 20100
Washer Spring
141 0 7439 05400
Arm Fast Wind Assy
141 2 7319 32200
Plate Slide Base
141 2 7419 62900
Lever Base Stop
141 2 7319 31102
Plate
141 2 3529 26400
Spacer Lever
141 2 6129 04500
Spindle Lever Button
141 2 8519 67100
Spring Fast Wind
141 2 4219 13200
Screw Washer
141 2 3529 19100
Spacer Base
141 2 5519 22300
Gear Fast Wind
141 2 7419 48100
Lever Fast Wind
141 0 7439 06300
Arm Take-up Assy
141 2 8519 70100
Spring Lever Button
141 2 1619 52207 (Silver)
Lever Button
141 2 1619 52201 (Black)
Lever Button
141 2 5519 22000
Gear Take-up
141 2 8519 71900
Spring Take-up Arm
141 2 1619 52203
Lever Button (Silver)
141 2 1619 52201
Lever Button (Black)
141 2 1619 52207 (Silver)
Lever Button
141 2 1619 52201 (Black)
Lever Button
141 2 8519 70100
Spring Lever Button
+BTS-2 2.6x8
141 2 6139 13101
Frame Button
141 2 4219 05400
Screw Washer
+PTS-B 3x8
+BTS-2 2.6x8
141 2 1619 52207 (Silver)
Lever Button
141 2 1619 52201 (Black)
Lever Button
141 2 8519 75300
Spring Lever Pause
141 2 7319 34000
Plate Pause
141 2 8519 70300
Spring Plate Pause
141 2 7419 51100
Lever Select
+PTS-B 3x8
141 2 8539 31300
Spring Cassette
141 2 7419 55900
Lever Pause
141 2 4219 13200
Screw Washer
+PTS-2 2.6x6
141 2 8219 24400
Chip Lock Lid Cast
141 0 3119 14509
Chassis Assy
141 2 5519 04400
Pulley Intermediate
141 2 8519 70300
Spring Plate Pause
141 2 7319 33000
Plate Lock Lid Cast
141 2 5519 22400
Gear Rewind

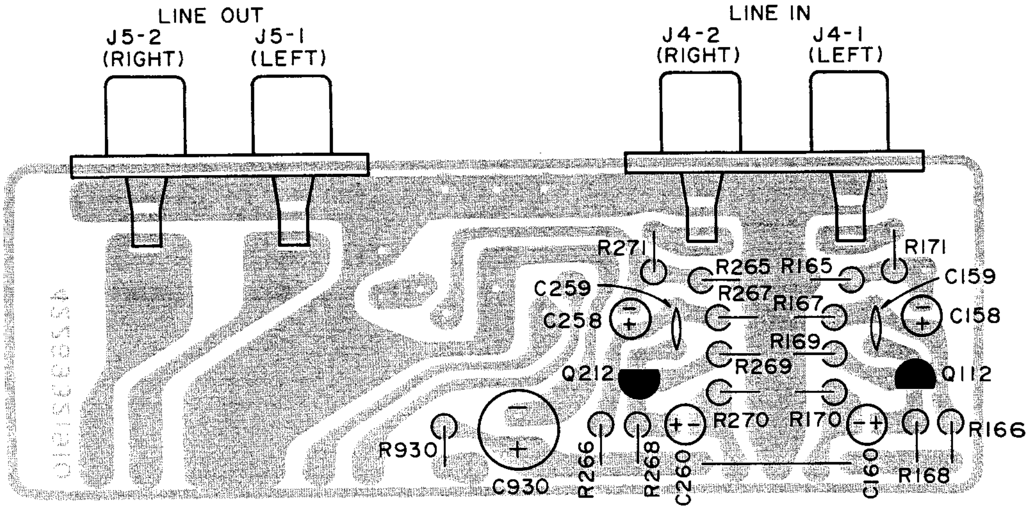
EXPLODED VIEW (Continued)

(Chassis Bottom)

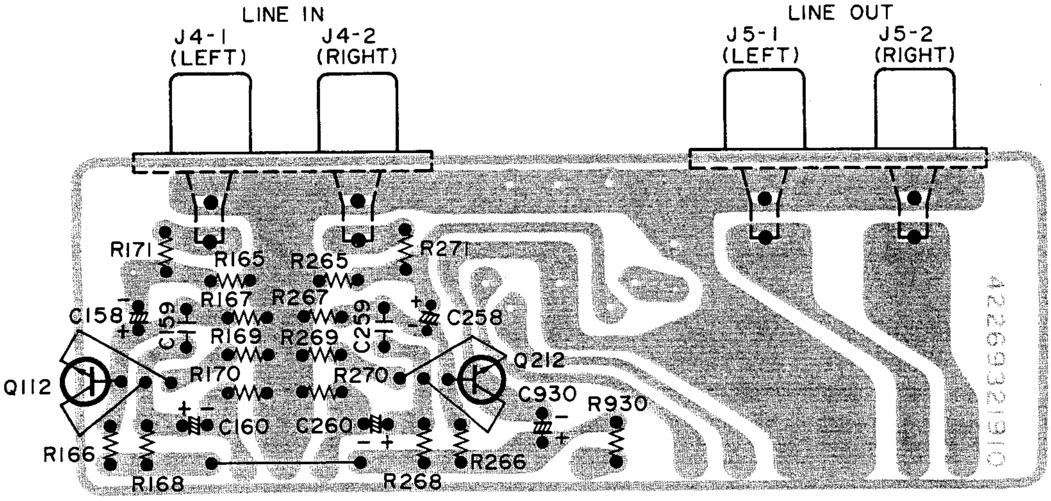

141 2 4219 13200
Screw Washer
141 2 5649 11100
Belt ASO
141 2 5519 27200
Pulley ASO
141 2 4539 15800
Washer
W 2.6x6x0.2
141 2 7419 51700
Lever Stop
141 2 7419 51600
Lever ASO
141 2 8519 73400
Spring Lever Stop
141 2 8519 72000
Spring ASO
141 2 4539 15800
Washer
141 2 8519 68100
Spring Pause
141 2 4219 12100
Screw Washer
141 2 7419 51900
Lever Stop Eject
141 2 5649 09900
Belt Take-up
141 0 5519 05901
Friction Assy
141 2 8519 19300
Spg Brake
141 2 3529 17900
Spacer Brake
+BTS-3 2x6
4 2319 73110
Leaf Switch
141 2 7319 33100
Plate Lock
141 2 7149 03400
Brake
141 2 8519 03600
Spg Shut-off Lever
4 5279 70836
Motor
141 2 4459 20501
Cover Brake
141 2 4469 00500
Thrust Flywheel
+PMS C PW 3x6
203 5 7330 61261
2SD612K
201 2 5010 014011
Mic Sheet
+PTS-B 3x10
141 2 4219 05400
Screw Washer
141 2 3519 36901
Support Flywheel
141 2 4729 04100
Lug
141 2 4219 17900
Screw +PMS 2.6x2.7
141 2 8519 70500
Spring Plate Record
141 2 7419 48300
Lever Record Stop
141 2 5649 11000
Belt Drive
141 2 4219 05400
Screw Washer
141 0 5219 03901
Flywheel Assy
141 2 8429 05400
Plate Record
141 2 4539 18400
Washer
141 2 8539 35800
Spring Flywheel
+PMS C SW 3x5
141 2 4539 17600
Washer

JACK P.C.BOARD

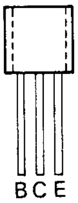
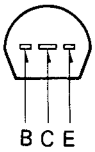
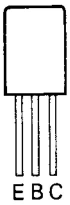
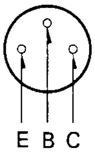
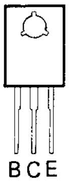
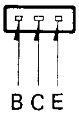
(TOP VIEW)


LINE OUT
J5-2
(RIGHT)
J5-1
(LEFT)
LINE IN
J4-2
(RIGHT)
J4-1
(LEFT)
R271
R265
R165
R171
C259
R267
R167
C159
C258
C158
R169
R269
Q212
Q112
R930
R270
R170
R166
C930
R266
R268
C260
C160
R168

(BOTTOM VIEW)


LINE IN
J4-1
(LEFT)
J4-2
(RIGHT)
LINE OUT
J5-1
(LEFT)
J5-2
(RIGHT)
R171
R165
R265
R271
R167
R267
C158
C159
C259
C258
R169
R269
Q112
R170
R270
Q212
C930
R930
C160
C260
R166
R168
R268
R266

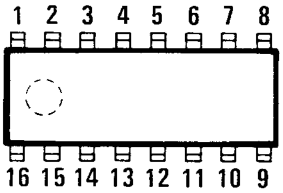
IC & TRANSISTOR LEAD IDENTIFICATION

FRONT VIEW	BOTTOM VIEW	TRANSISTOR
		2SC693 2SC1815 2SD545
		2SB185
		2SD612

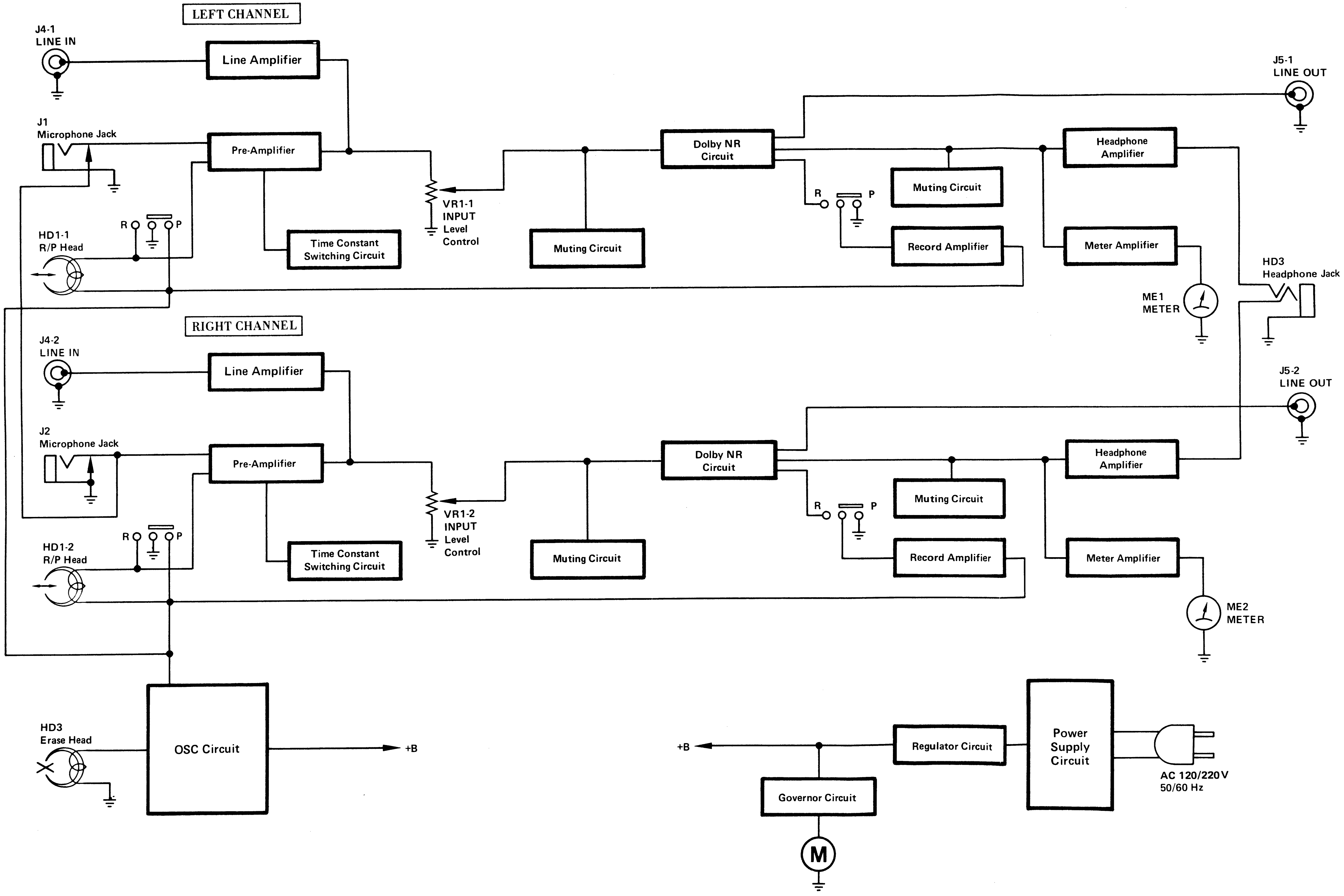
TERMINAL NAME

B⇒ BASE
C⇒ COLLECTOR
E⇒ EMITTER

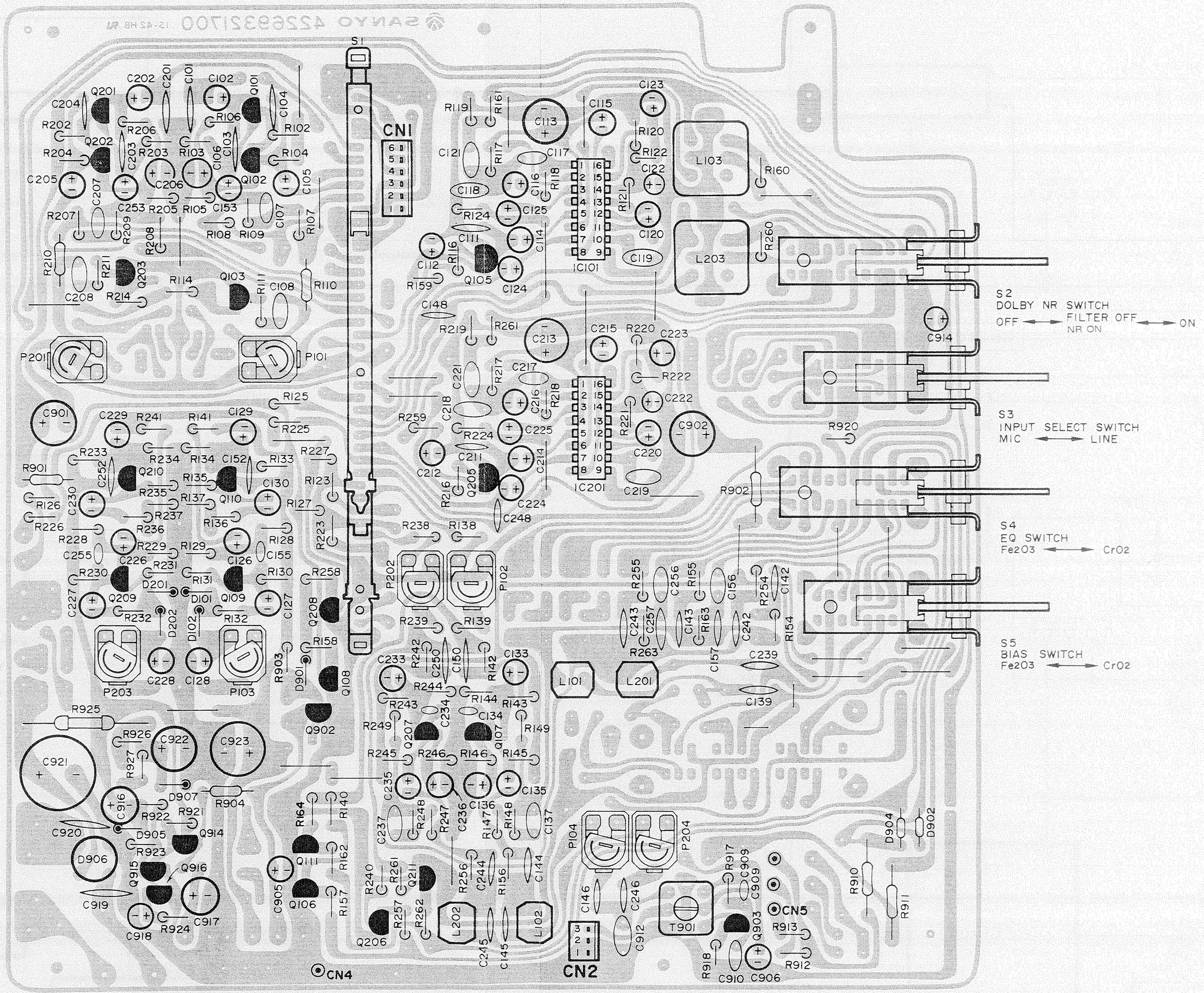
IC LM1011 BOTTOM VIEW


1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9

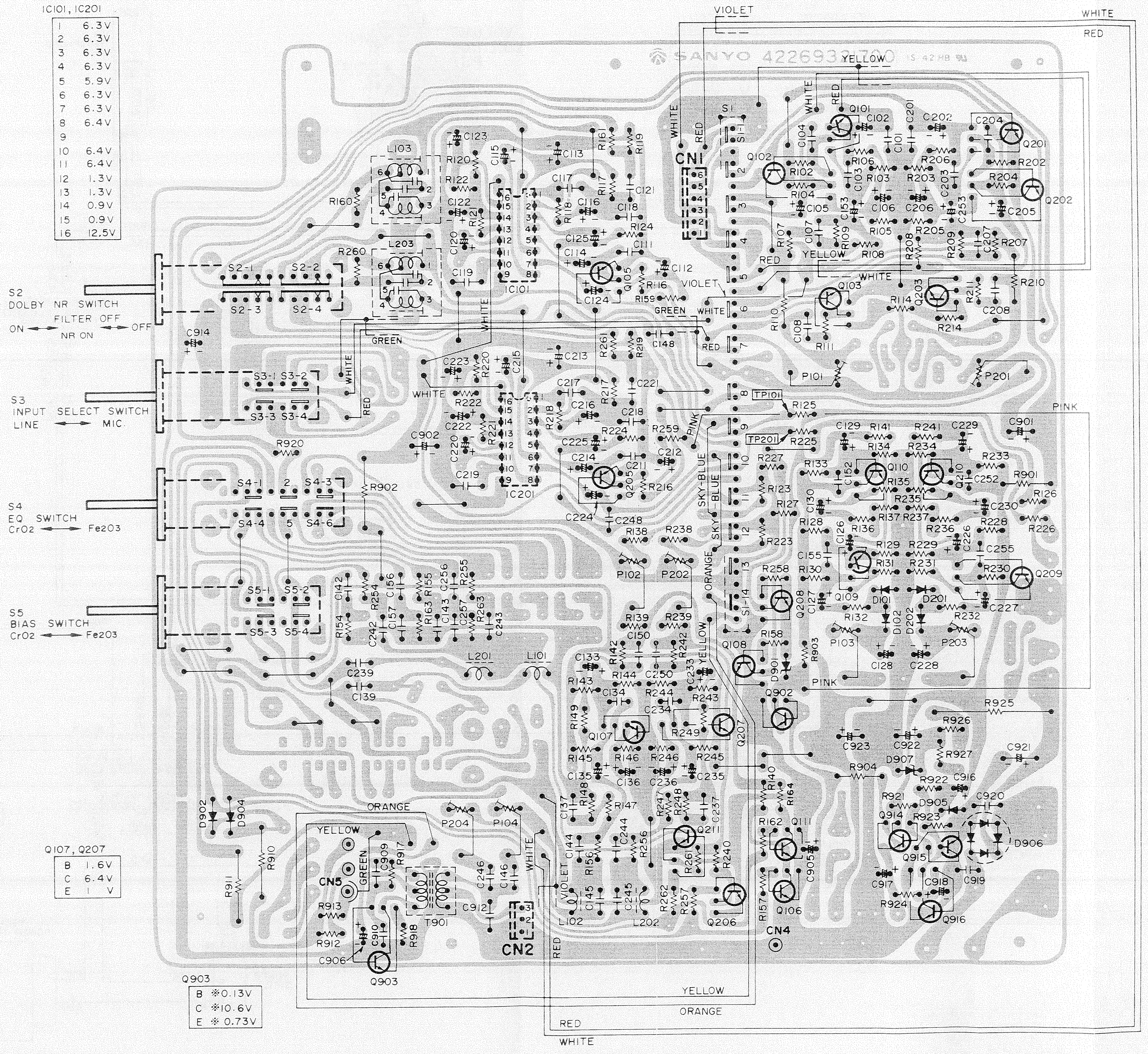
BLOCK DIAGRAM


LEFT CHANNEL
J4-1
LINE IN
Line Amplifier
J1
Microphone Jack
Pre-Amplifier
HD1-1
R/P Head
R
P
Time Constant
Switching Circuit
VR1-1
INPUT
Level
Control
Muting Circuit
Dolby NR
Circuit
Muting Circuit
Record Amplifier
Headphone
Amplifier
Meter Amplifier
J5-1
LINE OUT
HD3
Headphone Jack
ME1
METER
RIGHT CHANNEL
J4-2
LINE IN
Line Amplifier
J2
Microphone Jack
Pre-Amplifier
HD1-2
R/P Head
R
P
Time Constant
Switching Circuit
VR1-2
INPUT
Level
Control
Muting Circuit
Dolby NR
Circuit
Muting Circuit
Record Amplifier
Headphone
Amplifier
Meter Amplifier
J5-2
LINE OUT
ME2
METER
HD3
Erase Head
OSC Circuit
+B
+B
Regulator Circuit
Power
Supply
Circuit
AC 120/220V
50/60 Hz
Governor Circuit
M

AMPLIFIER BASE P.C.BOARD(Top View)


SANYO 4226932I700
S1
CN1
CN2
CN4
CN5
IC101
IC201
L103
L203
L101
L201
L102
L202
T901
P101
P102
P103
P104
P201
P202
P203
P204
Q101
Q102
Q103
Q105
Q106
Q107
Q108
Q109
Q110
Q111
Q201
Q202
Q203
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q902
Q903
Q914
Q915
Q916
D101
D102
D201
D202
D901
D902
D904
D905
D906
D907
C921
C922
C923
R925
S2
DOLBY NR SWITCH
OFF ←→ FILTER OFF NR ON ←→ ON
S3
INPUT SELECT SWITCH
MIC ←→ LINE
S4
EQ SWITCH
Fe2O3 ←→ CrO2
S5
BIAS SWITCH
Fe2O3 ←→ CrO2

AMPLIFIER BASE P.C.BOARD(Bottom View)


S2
DOLBY NR SWITCH
FILTER OFF
ON ◄► NR ON ◄► OFF
S3
INPUT SELECT SWITCH
LINE ◄► MIC
S4
EQ SWITCH
CrO2 ◄► Fe203
S5
BIAS SWITCH
CrO2 ◄► Fe203
SANYO 4226932700
VIOLET
WHITE
RED
YELLOW
GREEN
PINK
SKY-BLUE
BLUE
ORANGE
CN1
CN2
CN4
CN5
IC101
IC201
T901

IC101, IC201

1	6.3V
2	6.3V
3	6.3V
4	6.3V
5	5.9V
6	6.3V
7	6.3V
8	6.4V
9	
10	6.4V
11	6.4V
12	1.3V
13	1.3V
14	0.9V
15	0.9V
16	12.5V

Q107, Q207

B	1.6V
C	6.4V
E	1 V

Q903

B	※0.13V
C	※10.6V
E	※ 0.73V

Q101, Q201

B	0.6V
C	1.3V
E	19mV

Q102, Q202

B	1.3V
C	4.5V
E	0.6V

Q110, Q210

B	7.7V
C	14.7V
E	7.1V

Q109, Q209

B	0.9V
C	6.9V
E	0.3V

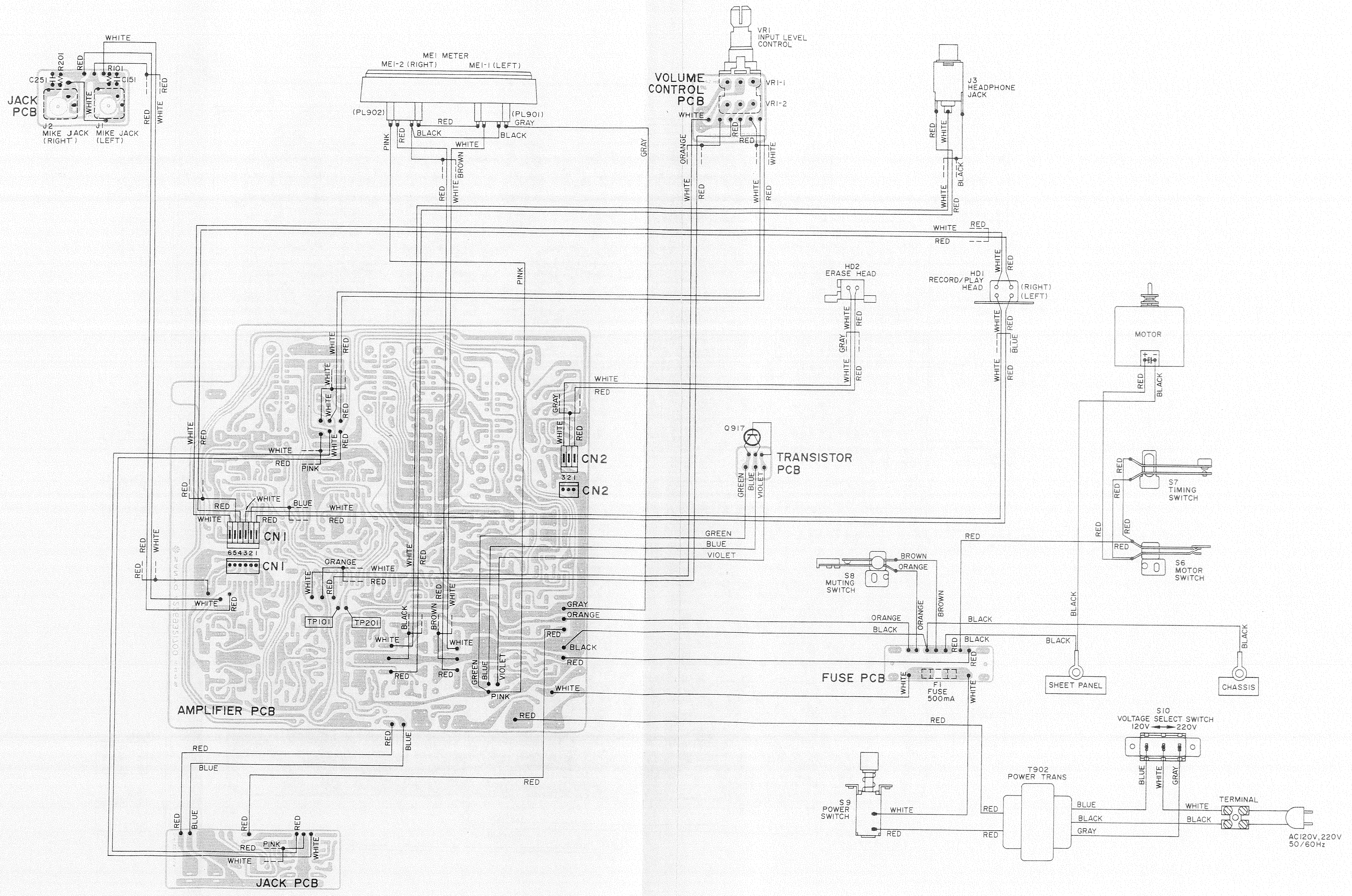
Q914

B	14.6V
C	14.6V
E	14.1 V

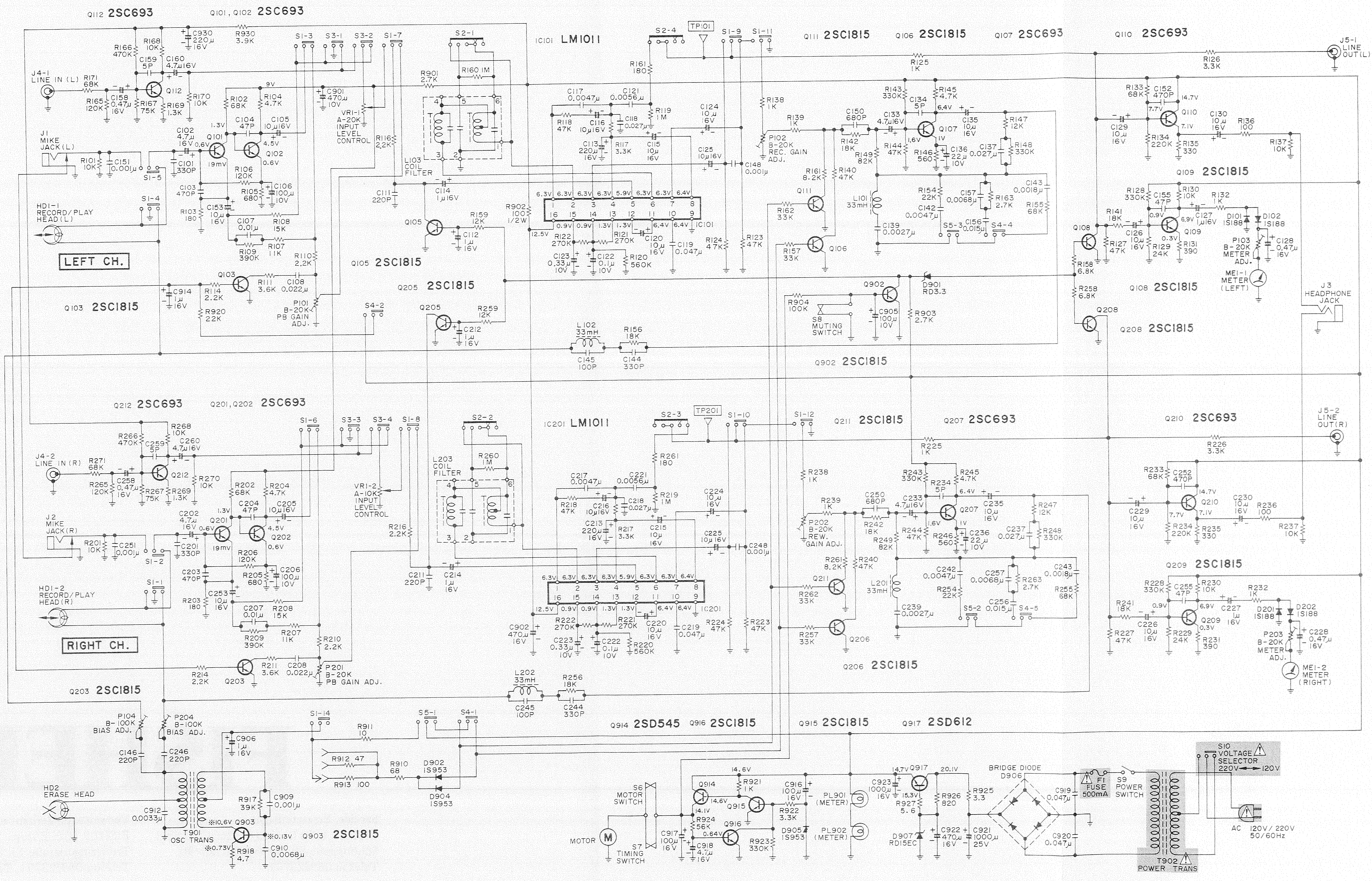
Q916

B	0.64V
C	
E	

WIRING DIAGRAM


JACK PCB
C251
R201
R101
C151
J2 MIKE JACK (RIGHT)
J1 MIKE JACK (LEFT)
ME1 METER
ME1-2 (RIGHT)
ME1-1 (LEFT)
(PL902)
(PL901)
VR1 INPUT LEVEL CONTROL
VOLUME CONTROL PCB
VR1-1
VR1-2
J3 HEADPHONE JACK
HD2 ERASE HEAD
HD1 RECORD/PLAY HEAD
(RIGHT)
(LEFT)
MOTOR
Q917
TRANSISTOR PCB
CN2
321
CN1
654321
TP101
TP201
AMPLIFIER PCB
S7 TIMING SWITCH
S6 MOTOR SWITCH
S8 MUTING SWITCH
FUSE PCB
F1 FUSE 500mA
SHEET PANEL
CHASSIS
S10 VOLTAGE SELECT SWITCH
120V 220V
T902 POWER TRANS
S9 POWER SWITCH
TERMINAL
AC120V,220V 50/60Hz
JACK PCB
WHITE
RED
BLACK
GRAY
PINK
BROWN
ORANGE
BLUE
GREEN
VIOLET

SCHEMATIC DIAGRAM

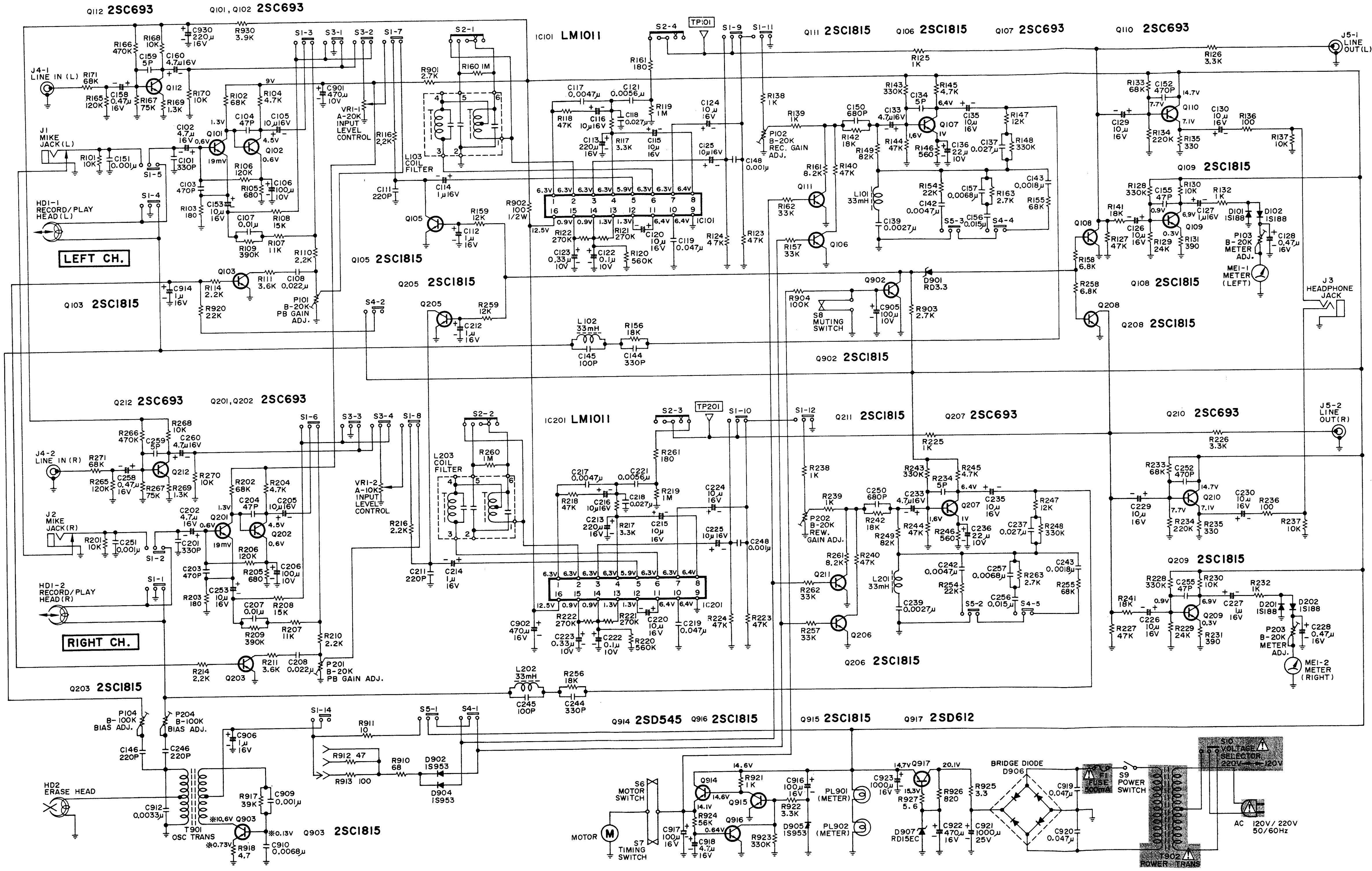

Q112 2SC693
Q101, Q102 2SC693
IC101 LM1011
Q111 2SC1815
Q106 2SC1815
Q107 2SC693
Q110 2SC693
J5-1 LINE OUT(L)
J4-1 LINE IN (L)
J1 MIKE JACK(L)
HD1-1 RECORD/PLAY HEAD(L)
LEFT CH.
Q103 2SC1815
Q105 2SC1815
Q205 2SC1815
VR1-1 A-20K INPUT LEVEL CONTROL
L103 COIL FILTER
P101 B-20K PB GAIN ADJ.
P102 B-20K REC. GAIN ADJ.
Q109 2SC1815
Q108 2SC1815
Q208 2SC1815
P103 B-20K METER ADJ.
ME1-1 METER (LEFT)
J3 HEADPHONE JACK
Q902 2SC1815
S8 MUTING SWITCH
D901 RD3.3
L102 33mH
Q212 2SC693
Q201, Q202 2SC693
IC201 LM1011
Q211 2SC1815
Q207 2SC693
Q210 2SC693
J5-2 LINE OUT(R)
J4-2 LINE IN (R)
J2 MIKE JACK(R)
HD1-2 RECORD/PLAY HEAD(R)
RIGHT CH.
VR1-2 A-10K INPUT LEVEL CONTROL
L203 COIL FILTER
P201 B-20K PB GAIN ADJ.
P202 B-20K REW. GAIN ADJ.
Q206 2SC1815
Q209 2SC1815
P203 B-20K METER ADJ.
ME1-2 METER (RIGHT)
Q203 2SC1815
L202 33mH
P104 B-100K BIAS ADJ.
P204 B-100K BIAS ADJ.
HD2 ERASE HEAD
T901 OSC TRANS
Q903 2SC1815
D902 1S953
D904 1S953
Q914 2SD545
Q916 2SC1815
Q915 2SC1815
Q917 2SD612
S6 MOTOR SWITCH
S7 TIMING SWITCH
MOTOR
PL901 (METER)
PL902 (METER)
D905 1S953
D907 RD15EC
BRIDGE DIODE D906
F1 FUSE 500mA
S9 POWER SWITCH
S10 VOLTAGE SELECTOR 220V ⟷ 120V
T902 POWER TRANS
AC 120V/220V 50/60Hz

No.	Name	Position	No.	Name	Position	No.	Name	Position
S1	RECORD/PLAYBACK Switch	PLAYBACK	S5	BIAS Switch	Fe2O3	S9	POWER Switch	OFF
S2	DOLBY NR Switch	OFF	S6	MOTOR Switch	OFF	S10	VOLTAGE SELECT Switch	120V
S3	INPUT SELECT Switch	MIC	S7	TIMING Switch	CLOSE			
S4	EQ Switch	Fe2O3	S8	MUTING Switch	CLOSE			

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE ATTACHED PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.

SCHEMATIC DIAGRAM


Q112 2SC693
Q101, Q102 2SC693
IC101 LM1011
Q111 2SC1815
Q106 2SC1815
Q107 2SC693
Q110 2SC693
J5-1 LINE OUT(L)
J4-1 LINE IN (L)
J1 MIKE JACK(L)
HD1-1 RECORD/PLAY HEAD(L)
LEFT CH.
Q103 2SC1815
Q105 2SC1815
Q205 2SC1815
VR1-1 A-20K INPUT LEVEL CONTROL
L103 COIL FILTER
P101 B-20K PB GAIN ADJ.
P102 B-20K REC. GAIN ADJ.
Q109 2SC1815
Q108 2SC1815
Q208 2SC1815
P103 B-20K METER ADJ.
ME1-1 METER (LEFT)
J3 HEADPHONE JACK
Q902 2SC1815
S8 MUTING SWITCH
D901 RD3.3
Q212 2SC693
Q201, Q202 2SC693
IC201 LM1011
Q211 2SC1815
Q207 2SC693
Q210 2SC693
J5-2 LINE OUT(R)
J4-2 LINE IN (R)
J2 MIKE JACK(R)
HD1-2 RECORD/PLAY HEAD(R)
RIGHT CH.
VR1-2 A-10K INPUT LEVEL CONTROL
L203 COIL FILTER
P202 B-20K REW. GAIN ADJ.
Q209 2SC1815
P203 B-20K METER ADJ.
ME1-2 METER (RIGHT)
Q206 2SC1815
Q203 2SC1815
P201 B-20K PB GAIN ADJ.
P104 B-100K BIAS ADJ.
P204 B-100K BIAS ADJ.
HD2 ERASE HEAD
T901 OSC TRANS
Q903 2SC1815
Q914 2SD545
Q916 2SC1815
Q915 2SC1815
Q917 2SD612
S6 MOTOR SWITCH
S7 TIMING SWITCH
MOTOR
PL901 (METER)
PL902 (METER)
D907 RD15EC
BRIDGE DIODE D906
FUSE
S9 POWER SWITCH
S10 VOLTAGE SELECTOR 220V 120V
T902 POWER TRANS
AC 120V/220V 50/60Hz

No.	Name	Position	No.	Name	Position	No.	Name	Position
S1	RECORD/PLAYBACK Switch	PLAYBACK	S5	BIAS Switch	Fe2O3	S9	POWER Switch	OFF
S2	DOLBY NR Switch	OFF	S6	MOTOR Switch	OFF	S10	VOLTAGE SELECT Switch	120V
S3	INPUT SELECT Switch	MIC	S7	TIMING Switch	CLOSE			
S4	EQ Switch	Fe2O3	S8	MUTING Switch	CLOSE			

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE ATTACHED PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.